SHOUT
SHARE
IT

SMITHSONIAN INSTITUTION LIBRARIES

SMITHSONIAN INSTITUTION LIBRARIES

QH
7
E135
EANH
NH

EANHS

BULLETIN

SMITHSONIAN
AUG 15 1978
LIBRARIES

A publication of the East Africa Natural History Society, Box 44486, Nairobi, Kenya. Price 4 shillings

NOTES FOR CONTRIBUTORS

Members of the Society (and non-members) are asked to follow these simple instructions when writing articles or letters for submission to the *Bulletin*. The *Bulletin* is presented six times a year in a duplicated format: the paper size is 20.5×23 cm (10×8 inches), line drawings can be reproduced but the area should not be more than 17.5×23 cm. Lettering on figures should preferably be in 'Letraset', neatly done in Indian ink or left blank: if the last method is followed, the lettering should be indicated on an overlaying sheet and should *not* be done on the figure. Figures should be prepared on good quality white writing paper and not on Bristol Board or other thick material. Whenever plants or animals are mentioned the scientific name should also be given but not in parenthesis. Trinomials should not be used unless there is good reason to do so. Author's names of species are not required.

Contributions may be typed (preferably) or written clearly and should be sent to: M. P. Clifton, Box 44486, Nairobi, Kenya. Receipt of contributions will be acknowledged.

CONTENTS

On Baobabs and Ruins 2
Notes on 'Upland Kenya Wild Flowers' 3
Nest Record Scheme 5
Ringing News 8
Two Albinistic Birds in Coastal Kenya 9
Obituary : Patrick Hugh Blair Sessions 10
'Flamingo Lake' 11
A Prickly Buffalo 11
An Unusual Cheetah Kill 12
Letters to the Editor. 12
Book Reviews :
Faces of Kenya 14
Flowering Vines of the World 16
Flowering Tropical Climbers 16
Les Oiseaux du Zaire 16
Society Lecture Notes
The Rendille 18
Bees by Mr Nightingale 19
Requests for Information 20
Scopus 21
Annual General Meeting 21
Society Notes 21
New Members 23
Society Functions 24

ON BAOBABS AND RUINS

In travelling along the coast of East Africa from Vanga to Lamu, groves of Baobab trees, Adansonia digitata will be noticed at intervals. The one known to most visitors is that on the south-west side of Mombasa Island, other known examples occur on the north side of Takaungu creek and the north side of Kilifi creek. Upon investigation, I was somewhat surprised to discover that these groves were almost invariably found on the site of an old ruined town; the frequency of this occurrence seemed to be more than a coincidence, so I cast about for an explanation. After much fruitless enquiry, an old man gave me the following explanation, which is so simple and so probable that I cannot help thinking that it must be correct.

He stated that if the Swahili woman wishes to cleanse her hair she obtains a quantity of the seeds of the Baobab and macerates them in water and makes a hair wash. My informant went on say that when women had made their hair wash they threw the seeds out on to the domestic dust heap, and while the town was occupied, of course, if they germinated they had very little chance of survival, for the goats would nibble off the seedlings, but once the place was deserted, owing to war or other causes, the bush would cover the area, and the more recent Baobab seeds would germinate along with other plants. In this case it may be deduced that the age of the older Baobabs, if it can be determined, would give with reasonable accuracy the date of the abandonment of the site.

The hard shell which forms the outer covering of the Baobab is also used for drawing water out of wells. A square hole is cut out of the side near one end, the seeds and dried pulp are taken out and thrown away, or possibly the latter is used for hair wash, and three or four of the empty shells are suspended on a rope and used for raising water. This is a collateral explanation of the presence of these Baobab groves on old town sites. There is a current idea that, on account of the great bulk of the Baobab trees, they are of enormous age; this belief is, I consider, a somewhat ill-founded inference.

The Baobab belongs to the family Bombacaceae and the wood is hardly worthy of the name, as it has the consistency of a cabbage stalk, and it is sometimes used for the manufacture of paper. The flesh of the fruit in which the seeds are enveloped, as is well known, contains a certain amount of tartaric acid, and possibly in the form of tartrate of potash, and it is sometimes used for making a cooling drink.

I endeavoured to count the rings of growth in a medium-

sized tree which was cut down in constructing a road; allowing for two rings per annum, that is, one for each of the two rainy seasons in each year, I could not count more than 220 rings. It was not easy to be certain of the number when one approached the outer circumference, for naturally the rings gradually became thinner as one counted from the centre to the circumference. Assuming that the count was fairly accurate, 220 rings would give an age of 110 years, which seemed small for a tree almost three and a half metres in diameter.

Baobab trees are difficult to cut down owing to the spongy nature of the wood and their great girth. During the railway construction it was found that by anchoring one end of a steel rope, taking a turn round the tree and attaching the other end to a traction engine, the rope would cut through the base of the tree. The trouble was, however, not then finished, for the tree just stood where it was, and the rope had to be attached to the upper branches and the tree pulled bodily over. Baobabs are deciduous, they only bear leaves for a very short period during the year, and the remainder of the tree stands as a bare dropsical monstrosity, but even then a grove of them has a charm of its own, and they give a very distinctive note to the scenery of the East African coast, and will be missed when they are swept away to make room for improvements. The great white flowers, some 15 - 20cm in diameter, are very beautiful in their way, but like the leaves they last for a very short time; the young leaves are a greatly prized food for livestock, and slabs of bark are cut from the trees by the local people to make rope and plaited bags. The Baobab, nevertheless, appears to have a faculty of healing wounds in its epidermis, however extensive they may be. The fruit juice is also used by rubber planters as a reagent for congealing the latex.

C.W. Hobley

The above article has been adapted and reprinted from the Journal of the East Africa and Uganda Natural History Society, No 17, March 1922, p. 75 - 77. I have used it for this issue of the Bulletin firstly for its obvious interest to members and secondly for its connection to Dr M. Fenner's Request for Information on Baobab trees which appears in this issue. Ed.

NOTES ON UPLAND KENYA WILD FLOWERS

During field work in 1976 several additions to my book, 'Upland Kenya Wild Flowers' came to light, and this short note should allow members to update their copies.

A. *Viola* in Kenya

A third species is common enough on the moorlands on the Aberdares and Mt. Kenya, *Viola nannae* R.E.Fr. It has been overlooked because it is small and straggly and apparently seldom flowers. When I saw it in June all flowers were cleistocarpic, that is they never opened, being self pollinated in the bud. The key to *Viola* (p. 100) should be amended to :

1 Leaves rounded at base; stipules lanceolate, undivided 1. *V. nannae*

\- Leaves cordate (notched at the junction with the leaf stalk); stipules divided into numerous teeth.

2 Leaves rounded at apex, hairless on upper surface or with a few hairs along the midribs. 2. *V. eminii*

\- Leaves pointed at apex, the upper surface with scattered hairs between the veins 3. *V. abyssinica*

1. *Viola nannae* R.E.Fr.
A low creeping perennial, sparsely hairy on all parts, with circular leaves and small white-pink flowers.
Locally common in sub alpine heathland amongst *Alchemilla argyrophylla*, *Erica* etc. HM, HA, HK.
Agnew 11106

B. *Thesium*

In June 1976 a species of *Thesium* was found abundantly along woodland edges and roadsides at the northern end of the Chyulu Hills. This turned out to be *Thesium subaphyllum* Engl., known from the Coast. It necessitates the following additions to UKWF (p. 336).

Insert couplet 1a between 1 and 2 in the key to *Thesium*

1a Stems winged; flowers in long terminal spikes 8. *T. subaphyllum* Engl.

\- Stems unwinged; flowers in terminal or axillary clusters or racemes 2.

Of course in the first couplet read 1a for 2

8. *Thesium subaphyllum* Engl.
An erect almost leafless switch-like plant to 50cm with winged stems ending in long spikes of sessile flowers; fruits 3mm long, globular, yellow, wrinkled. Forest edges and roadsides on the Chyulu Hills. KAJ.
Agnew 11029.

C. Floristic Notes on the Chyulu Hills.

Of interest was the rediscovery of Triphostemma longifolium Harms in the Chyulu, originally collected by P.R.O. Bally in 1938, and the following new records for KAJ in UKWF :

Alectra parasitica
Anisopappus holstii
Blepharisparmum fruticosum
Cissampelos pareira
Cynanchium abyssinicum
Desmodium repandum
Dichondra repens
Droguetia iners
Geranium arabicum
Helichrysum maranguense
Hibiscus aponeurus
Impatiens rubromaculata
Isoglossa oerstediana
Laggera brevipes
Lippia ukambensis
Mimulopsis solmsii
Osyridicarpus scandens
Oxalis radicosa
Pycnostachys umbrosa
Thesium stuhlmannii
Thunbergia alata
Viola abyssinica

Dr A.D.Q. Agnew,
University College,
ABERYSTWYTH, Wales.

NEST RECORD SCHEME

The Nest Record Scheme has progressed well during 1977; there have been several new contributors and the 'regulars' have maintained their enthusiasm. Visiting expeditions have been kind enough to send in their breeding observations, and I believe that when all cards are in for this year it will prove to be the most successful yet.

Leslie Brown and Peter Britton have now finished the analysis of seasonal data, and their paper entitled 'The breeding seasons of East African Birds' will be published by the E.A.N.H.S. in the near future. This paper is a direct result of your efforts over the last seven years and I hope that it will be the first of several major papers to use the Nest Record Scheme data. Apart from the information on breeding seasons this paper also serves to draw attention to the gaps in our knowledge. I regularly receive comments like, 'Oh, do you still want records' and 'surely you don't want records of.....they're so common'. After I have calmed down, I explain that YES we do still want breeding records of all birds, even the commonest. The Nest Record Scheme is not a short term project - it is one that will continue for as long as there is a minimum number of contributors willing to put some effort into furthering our knowledge of East African birds. The longer the Scheme continues the more valuable it becomes and there cannot be too many records.

As the Society (in Scopus) will be producing a yearly bird report I am anxious to receive all cards for 1977 as soon as possible. Please send cards in immediately so that they can be included in my report which will cover the period July 1976 - December 1977. As Brown and Britton have included in their analysis all data to June 1976 and selected data to October this year, this report will keep members up to date with what information is available. Because of the exceptionally heavy rains this year much valuable data has been collected on species for which there were previously very few cards and we have also been able to cross off a few species in the category 'nest and eggs unknown'.

I feel that the forthcoming paper by Brown and Britton is something of a milestone in the history of the Nest Record Scheme. To mark the begining of a new phase, I have recently had another 5000 cards printed on pale yellow card. The new colour will enable future workers to tell at a glance which records were not included in the Brown and Britton paper. It has been necessary to increase the price to cts. -/10 per card which is still very little and shouldn't influence ones desire to contribute. Cards are available from me by post, from the Secretary in the Society's office at the National Museum and from the Ornithologist in the Bird Room of the National Museum. Where possible white cards should be exchanged for the new yellow ones, the former being kept for copying old records.

There have been quite a few requests recently for details of how to fill-in cards. I have therefore prepared a further supply (modified) of NOTES FOR CONTRIBUTORS TO THE NEST RECORD SCHEME, which are available with the cards. Please forgive me if you find these long-winded, but I have tried to incorporate all your queries. Sections 2 and 3 are reproduced below.

CONTRIBUTIONS. All records giving proof of breeding are wanted, and it is not necessary to actually find a nest in order to fill-in a card. The most valuable data are obtained when the nest is visited more than once, particularly if the nest is first noted when the birds are building. However, single observations are also valuable and the majority of cards are for such records. Cards should be made out for any of the following observations:

i) Nests with eggs or young. In the case of inaccessible nests (eg. in holes) cards should be completed only when it is known that the site does in fact hold a nest currently in use.

ii) Young being fed by parents out of the nest.

iii) Adults accompanied by flightless young eg. ducks, grebes, francolins, guineafowl etc.

Nest-building where there is no chance of follow-up data is not required for common species (particularly weavers which build many nests that are never used). Isolated observations of birds in breeding plumage, displaying and copulation are also not required except for little known or rare species.

FILLING IN CARDS. This is quite straightforward. The instructions below should help to answer any queries.

A			
SPECIES B		OBSERVER	
DATE (first observation)	HABITAT		
LOCALITY C NEST	SEASON D	EGGS/NESTLINGS E	
SITUATION	MATERIALS/ TYPE	NO.	DESCRIPTION
OTHER NOTES			

A - nothing to be written above the black line.
B - English or scientific names (or both) are equally acceptable.
C - unless it is a well-known locality such as Nairobi, Arusha etc. please give as much detail here as possible. Altitude if known is very useful.
D - examples for insertion here are :- begining of rains/rains/ end of rains/ dry/end of dry etc.
E - please delete whichever is inapplicable.

i) Side 1 of the card should be filled in on the first visit. If the nest is still being built this should be noted under the section OTHER NOTES. Further visits to the nest should be recorded on Side 2, although descriptions of the nest, eggs or nestlings can be recorded in the appropriate parts of Side 1. Where a description of the

eggs has been recorded and there is no room for a subsequent description of the hatched nestlings, this can be entered on Side 2.

ii) Some description of the young birds should be given, so that where possible an estimate of the age can be made. Some useful descriptions of nestlings are a) hatching still in progress; b) young still wet; c) young naked or downy; d) eyes not open/open; e) young covered in quills/well feathered; f) young $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ size of or as big as, adult.

iii) If the nest is deserted, even after the first visit, this should be recorded on the card. If the cause of desertion is known this should also be recorded.

iv) Where the nest is also used by parasitic birds (eg. cuckoos, honeyguides, whydahs complete <u>two</u> cards, one for the parasitic species <u>and</u> one for the host. Please give full details on <u>both</u> cards which should be cross referenced.

I would like to thank again all contributors for the cards I have received in 1977 and wish them a very happy Christmas and a successful 1978.

Hazel Britton (Organiser),
Nest Record Scheme,
P.O. Box 90163, MOMBASA,
Kenya.

RINGING NEWS

A good way of getting new recoveries is to prepare a Ringing Report and hand it to the printer - within a week or so fresh recoveries will come in, too late for the report ! This has just happened with the arrival of the latest 'Moscow Letter', four recoveries to the U.S.S.R. which are as follows:

Ruff, <u>Philomachus pugnax</u>

C 3474 ringed 27.10.73 at L. Bogoria (formerly Hannington), Kenya by Dr D.J. Pearson & Dr W.P.H. Duffus.
found 3.7.77 near Vilyuisk, 63° 45'N, 121° 37'E.

B15403 ringed 24.10.76 at L. Magadi, Kenya by G.C. & D.E.G. Backhurst.
shot on the Olenek River, 68° 28'N, 113° 00'E.

Swallow, <u>Hirundo rustica</u>

J87835 ringed 30.3.74 at L. Nakuru, Kenya by J.F. & L.H. Harper.
recovered 5.6.77 near Primorskoe, 46° 44'N, 36° 23'E.

J104728 ringed 5.3.76 at Kariobangi, Kenya by Dr D.J. Pearson

found 5.9.77 near Terek, 43° 57'N, 43° 07'E.

It is surprising, and a little disappointing, that there have been no recoveries from members of the public in Europe and the Middle East from the autumn passage of birds through these countries. Perhaps the publication of this statement will do the trick.

G.C. Backhurst,
Ringing Organizer,
P.O. Box 29003, NAIROBI.

TWO ALBINISTIC BIRDS IN COASTAL KENYA

Britton (1969, Bulletin of the British Ornithologists' Club, 89: 169 - 171) gives remarkably few records of albinism in East African birds in either the National Museum (Nairobi) collection or a large sample handled during ringing operations. Subsequent reports have appeared in this Bulletin (1971: 163; 1972: 30, 63; 1977: 31), and other observers may well have unpublished sightings which should be placed on record. During ringing operations since 1969 we have handled several further birds with one or two white feathers, but the two sightings in this note are our only recent records of more extensive albinism.

Carmine Bee-eater, Merops nubicus

At least 2000 roosting in the mangroves at Mida Creek on 3rd February 1974 included one which was whitish in areas normally carmine, with dark rump and primary feathers. It was seen only briefly on the wing in good light by Pat and Anne Donnelly and ourselves. No similar bird has been seen by the Donnellys in their many previous and subsequent visits to the same roost.

Drongo, Dicrurus adsimilis

A bird with wholly white belly and primaries has been seen on many occasions on telegraph wires and other perches, over an area of about 2ha at Shimo-la-Tewa School, Mombasa, between 5th May 1976 and 22nd November 1977. Both wings have similar white areas, prominently displayed both in flight and at rest. Interactions with birds of this and other species are apparently normal, and it is often in company with a presumed mate. A wholly white bird in the National Museum collection may have had an unusually pale bill and legs (Britton op. cit.) but soft part colours of the Mombasa bird seem to be normal.

Peter and Hazel Britton,
Shimo-la-Tewa School,
P.O. Box 90163, MOMBASA,
Kenya

OBITUARY

PATRICK HUGH BLAIR SESSIONS 1920 - 1977

After demobilization from the Royal Navy in 1945, Pat came to Kenya as manager of Marania Farm, Timau. Despite his lack of farming experience he and his wife Vanda accepted this challenging post with characteristic enthusiasm and determination, creating a model, profitable enterprise within a space of only five years. In 1952 Pat obtained Lengetia Farm at Mau Narok, where he lived until 1975. From a simple begining, with only a tractor, implements and a flock of sheep, Pat and Vanda transformed virgin land into a thriving farm, where his beef cattle, wool, sheep and breeding stock were in constant demand. His grass leys were the envy of all who saw them, and so good and clean were his cereal crops that the majority were sold as seed.

Pat truly identified himself with Kenya, serving on many agricultural committees, where he shared his experience freely, and for many years he served on the Board of Governors of Pembroke House. He was especially concerned with the welfare of his farm workers who received the greater share of his attention, sympathy in time of need and a watchful eye for any opportunity to improve their lot.

Pat's hobby was ornithology which he combined with his farming activities. His 1967 paper on the birds of Lengetia Farm (in our Journal) is outstanding as an example of the value of sustained, systematic observations in a limited area. A later paper on Mackinder's Eagle Owl (also in our Journal) summarized his detailed observations on the biology of this little known species, including notes on a captive young bird which was for some time a local celebrity, attracting many visitors. He responded to the Nest Record Scheme soon after it began, and not only became a regular contributor but copied all his breeding records since 1952 cnto cards.

All were made welcome at Pat and Vanda's home and his many friends took every opportunity to visit them as often as possible. Their hospitality and generosity were legendary, and a donation to the Nest Record Scheme when postage charges increased was typical of their thoughtfulness.

Pat had been seriously ill for over two years, and though inevitable, his untimely death leaves Kenya and his many friends the poorer. We shall all miss him and extend our sympathy to Vanda and his three sons in their great loss.

DAJG, HAB.

'FLAMINGO LAKE'

On 9th December 1977, a party from Mbeya visited a small lake about 27km south-east of Lake Rukwa in Southern Tanzania. This temporary alkaline lake dries up completely in the dry season. At present, water covers about a third of its potential area to a depth of about 15cm. It is known locally as the 'Flamingo Lake' and we were fortunate enough to see an advance guard of seven birds. Four were adults and three were smaller, whitish juveniles. I think they were Greater Flamingo, Phoenicopterus ruber, but we were not able to get close enough to be sure that they were not Lesser Flamingo, P. minor. In favour of the former, there seemed to be plenty of insect life but the water was clear of algae. They were resting and seemed to be unperturbed by our approach. We were told by the local people that there would be many more by February.

Apart from a quantity of dead rats and scorpions on the dry lake bed, in the damper patches there were hundreds of small (5mm long) golden brown empty pupal cases. It looked as though their inhabitants, at the first good rain, wriggled up from beneath the sandy mud and emerged. It would be very interesting to know what these could have been.

Mrs Rachel A. Nicholson,
P.O. Box 259, MBEYA,
Tanzania.

A PRICKLY BUFFALO

I spent the night of 22nd November 1977 at The Ark, Aberdares, Kenya. A lone Buffalo, Syncerus caffer two or three times came into the floodlights right under the viewing gallery. In the centre of his neck, just behind the boss of the horns, he had projecting for about 15cm what appeared to be a thick Porcupine Hystrix galeata quill. He had a second quill broken off shorter on the side of his neck just behind the ear and a third even shorter one in the boss of his horns. My observations were made through binoculars at very close range and I am in no doubt that these were Porcupine quills. They were, of course, a bit muddy. My observations were confirmed by the hostess, Miss Caroline Clarke, standing beside me and also using binoculars. I offer no conjecture on how he got these.

Mr Eric Risley,
P.O. Box 24751, NAIROBI.

Mr Ian Hardy, a hunter at the above-mentioned Lodge reports that Porcupine are sometimes seen trotting about in the glade, and one morning the wooden steps which lead up to the bus were found bristling with quills. Obviously a Porcupine had come along in the night and had an argument with them.! Ed.

AN UNUSUAL CHEETAH KILL

The following incident was reported to me by Mr Bernard Kilesi, a senior driver for Tarangire Ltd.

During the dry season of 1973 Elephants, Loxodonta africana in Tarangire National Park, Tanzania, were begining to eat the soft tissue of the Baobab, Adansonia digitata. One Elephant was unfortunate enough to be killed when the large Baobab he was eating collapsed on top of him.

On the morning in question, Barnard was taking a group of visitors to see the tree and Elephant carcass. They were travelling possibly a bit faster than on a normal game drive and though he saw four Fringe-eared Oryx, Oryx beisa callotis he was not quick enough to realize something unusual was happening. Before they saw the car the four Oryx were standing with their hindquarters together rather like a British infantry square. Before Bernard could bring the Land Rover to a stop the Oryx were spooked and ran off. When they broke the square and started moving off, a Cheetah, Acinonyx jubatus ran from nearby cover where it had been unseen and caught a sub-adult male Oryx from the four and killed it with the normal Cheetah strangle hold on the neck. I have seen Cheetah in Tarangire National Park retreat from Warthog, Phacochoerus aethiopicus so it is rather suprising to find one catching an Oryx with their reputation for aggressiveness towards predators. I would be very interested to hear if anyone else has seen a Cheetah kill an Oryx.

Gerald Rilling,
P.O. Box 284, ARUSHA,
Tanzania.

LETTERS TO THE EDITOR

Dear Sir,

Blue-eared Glossy Starling as Host of the Great Spotted Cuckoo. In her note on the Great Spotted Cuckoo, Clamator glandarius (EANHS Bulletin 1977: 108) Dennie Angwin asks if the

Blue-eared Glossy Starling is a known host of the Great Spotted Cuckoo.

There are no cards in the EANHS Nest Record Scheme giving this Starling as a host, nor do any of the widely used reference books for this region specifically mention it, though both Payne & Payne (1967) and Jensen & Jensen (1969) list it as a host in southern Africa.

There are eight EANHS Nest Record Scheme cards for this Cuckoo, four involving the Pied Crow, Corvus albus and the remainder involving Starlings of three species.

REFERENCES

Jensen, R.A.C. & Jensen, M.K. 1969. On the breeding biology of southern African Cuckoos. Ostrich 40 : 163 - 181.
Payne, R.B. & Payne, K. 1967. Cuckoo hosts in southern Africa. Ostrich 38 : 135 - 143.

Hazel Britton,
Shimo-la-Tewa School,
P.O. Box 90163, MOMBASA,
Kenya.

Dear Sir,

Please permit me to comment on the remarks made by Mr J. Rilling on 'Fighting in Mammals' (EANHS Bulletin 1977, 79 - 80). His observations on severe injuries and fatal outcome in fights among male ungulates are interesting but, in my view, do not invalidate the general concept that such events are not the norm. If Mr Rilling cares to relate the number of fatal injuries he has seen, or even the number of males with broken horns, to the number of fights that he may have witnessed in, say, Thomson's Gazelles, he will almost certainly find that their number is proportionally very small. Moreover, species that fight as often and as vigorously as Thomson's Gazelles do are relatively rare (cf. Mr Rilling's comment on Grant's Gazelle). I know of several biologists (including myself) who have spent many hours watching their study animals without seeing more than a 'handful' of really serious fights. The majority of disputes are indeed settled by ritualized displays or, at most, a few horn clashes. Fatal injuries almost always occur accidentally, if they do , eg. when one of the contestants stumbles and falls, the other may eventually gore him. With respect to wounds, I have often been impressed by the remarkable ability of wild animals to recover from the most gastly looking injuries.

I feel that Mr Rilling's observations, interesting though they are as documentary records, are no more than the proverbial 'exceptions that prove the rule'.

Dr Walter Leuthold,
Stolzestr. 19,
CH-8006 Zurich, Switzerland.

Dear Sir,

In the November/December 1977 Bulletin, there was a slight error in the Society Lecture Notes regarding the lecture I gave on 12th September 1977. In the last sentence it was reported that '...provision is also being made to reduce the number of livestock by setting up a meat canning factory for the region'. What I said was that a cattle market was established in the area.

Mr James Kahurananga,
P.O. Box 45166, NAIROBI.

BOOK REVIEWS

FACES OF KENYA by David Keith Jones, 1977. London: Hamish Hamilton. Pp 256, size 221 x 312mm, with 39 colour plates, 172 black & white photographs and 6 maps. UK price £10.00

The black jacket with its colour illustrations of sunset at Amboseli on the front, and Luo fishermen on the back, is eye-catching and attractive. This initial impression is confirmed by a quick glance through the book. Opening it at random one is impressed by the placement of the illustrations, captions and text to form a well-balanced harmonious whole double page. Any monotony in the black and white illustrations is avoided by enlarging them to different sizes and differing formats. Some are almost square, others oblong, narrow, upright or horizontal. Some oover the whole page or even a double page and are bled off the edges, others occupy may be half a page with a margin all round, and a few are quite small. So it is a well designed book and this is well illustrated on pages 56 and 57, where the very long, narrow horizontal format of the silhouetted ostriches is spread right across the two pages, the negative being printed twice, once reversed, to make an attractive composition.

The author has grouped the book into five broad sections, The Coast, Game Country, The Lakes, The Mountains and Desert Country. This gives him the opportunity to cover the whole country photographically. The text is brief but more than

adequate for what is essentially a book of photographs. It should be mentioned that the captions are well-written and informative.

And so we come to the most important part of the book, the photographs. Mr Jones' pictures of Kenya and its people are taken over the last eight years and, looking at the book, it is very obvious that he has travelled throughout the length and breadth of this country with an all-seeing eye, photographing its people, animals and countryside with a degree of comprehension which is an object lesson to all photographers. And the way he has managed to persuade the local inhabitants to pose for him without being self-conscious is a great credit to him.

The quality of the black and white reproductions is variable. Some are outstanding, for example the young Lamu woman on page 33. The white of the eyes, and the rich black of parts of the buibui give a full range print in which none of the gradations in the dark areas are lost. Then again, the whites of the Goma dancers' costumes are full of delicate tones. Others unfortunately show clogged up shadow areas and burnt out highlights. To photograph dark faces against a glaring white sky, especially when the sun is practically overhead is far from easy and the reproduction of such subjects even more difficult. The colour plates on the whole are disappointing. The Superb Starling on plate 14 might well be a new species ! The almost prohibitive cost of high quality colour seperations might well be a factor here. One wonders whether the author felt a tinge of disappointment on first examination of his book, that a good book could have been that much better if the photographs had been better reproduced.

To sum up. An ideal book to give to a friend departing after many years in this country, to bring back nostalgic memories, or a visitor whose stay is too brief to savour the variety of flora and fauna of Kenya, or even yourself to remind you of the photographic opportunities you have missed.

J.S.K.

The above publication can be ordered by members through the Society's office at a special discount price of Shs. 180.00. Up country members should include Shs. 10.00 for packing and postage. The retail price in Nairobi varies from Shs. 225.00 to Shs. 240.00. Delivery in the second half of January - - hopefully ! Ed.

FLOWERING VINES OF THE WORLD by E.A. Menninger, 1970. Horticultural Book Inc. 219 Martin Ave., Stuart, Florida 33494, U.S.A. Price $ 25 plus postage

FLOWERING TROPICAL CLIMBERS by G. Herklots, 1976. Wm. Dawson & Sons Ltd., Cannon House, Folkestone, Kent, Price: UK £17.50, U.S.A. $40, Nairobi Shs. 350/- (Text Book Centre)

Both these books will prove valuable to East Africans who wish to learn something about the flowering climbers which are such a splended feature of well-stocked tropical gardens. Dr Menninger's plant books, especially his Flowering Trees of the World are well known to plant lovers. Now in his 410 page book with 383 black and white and 196 colour photographs he gives good value for money. Unfortunately the titles of his pictures are away from the relevant text and do not state the family so this book is rather inconvenient to use. As he deals with temperate as well as tropical species and includes terrestrial creepers such as Mesembryanthemum among his 'vines' his coverage of real tropical climbers is not much greater than that provided in Herklots' 194 larger pages.

Dr Herklots is a distinguished agricultural expert, now retired and has worked for the British Government in many tropical countries. Wherever he had been he had studies, drawn and often grown the local lianes. With numerous interesting personal observations to enliven his botanical descriptions, 270 fine line drawings well arranged in the text and 16 clear and beautiful paintings, he has produced a book which, as well as being useful is artistically memorable.

Unfortunately neither of these expensive and attractive books provide keys to the families, genera and species. Those who can only afford one of them will probably consider Dr Menninger gives better value for money. Those who can afford to buy both should certainly do so.

J.B.G.

LES OISEAUX DU ZAIRE presentes par le General de Corps d'Armee Mobutu Sese Seko Kuku Ngbendu Wa Za Banga, President de la Republique du Zaire. Prepared by Leon Lippens and Henri Wille with colour photographs by Hubert Lahaen. Printed in Belgium by Lannoo and Teelt, undated ?1977? Price unknown.

In French with 505 pages, 591 colour photographs of which

14 are habitat, 577 represent the 398 of the 1086 species recorded from Zaire. Many distribution maps are alongside the text for each species. There is a diary of the journey from 13th June 1973 to 19th May 1974 by the three Belgians accompanied by four Zairians. Then follows a list of endemic species, the full list of birds with recognised races, a systematic section, without descriptions, of the species giving status, distribution, song, food, breeding data etc.

As the authors write, 'this present book is not a guide to the identification of the birds of Central Africa ..en anglais, a check-list'. There is much useful information on each species but I was personally dissapointed with the standard of photography and noted that the majority of pictures are of birds taken in mist nets and then placed on, in many cases, a completely unsuitable background, probably tied down, for photography and this despite their statement 'ces photos furent chaque fois prises dans un biotope naturel local'. Few of the specimens are posed in natural stances, some are obviously man-handled and under stress while the plates of the Sunbirds are quite terrible.

It is interesting to note the considerable distribution of the Congo Peacock, Afroparvo congensis and the suprising record of the Spotted Ground Thrush, Turdus fischeri captured on 7th October 1973 at Lusinga (1750m) in the National Park of Upemba. The bird in the photograph was identified by C.W. Benson as T.f. belcheri. The Bensons mention this in their recent book, Birds of Malawi. The Thrush is known from around a limited area of coastal Natal and Pondoland and is then found again in coastal Tanzania and Kenya. Also mentioned are the first records during their safari of the Red-necked Phalarope, Phalaropus lobatus and the Barred Warbler, Sylvia nisoria. However, amongst the endemics listed are some species whose range extends outside Zaire but this is not noted by the authors, such as the Lendu Flycatcher, Muscicapa lendu, found in Kakamega Forest, Lorenz's Greenbul, Phyllestrephus lorenzi and the Lake District Barred Owlet, Glaucidium castaneum, both found in Uganda. Surprisingly the Zairian list contains many oceanic species that one tends to forget, for although Zaire is in the very heart of Africa, as a country clothed in forest, it does have an outlet to the Atlantic Ocean with a limited coastline. Despite my remarks, if one can afford this book, a copy should be in the reference libraries.

G.R.C.vS.

The Rendille

This fascinating film by Grenada Telivision was shown to the Society by its anthropological consultant, Mr A. Grum, and the packed audience with their eager questions (for which there was not nearly enough time for Mr Grum to answer) showed how members of the Society enjoy a change to human 'natural history' as well as thosc subjects more strictly within our scope. Much of the film was made in the form of interviews with two Rendille men, an elder and a warrior, representing the two adult grades. The speaker was recorded in his own language with English captions, and this gave a most vivid presentation. The old man said that he remembers one day being told the date - 1903 - and that he was quite small then, perhaps about six years old. Since then he can recall journeys to and fro across the desert's dusty face that, laid end to end, would have taken him half round the world.

It is hard work to win a living from this less than marginal land. The only way it can be done is by converting the harsh and spiny vegetation into meat and milk. A few goats and sheep are kept, but they can only live in the better areas, near the main camps, and even the kid that we saw chosen for sacrifice, supposed to be one of the best they had, had not eaten anything for a week. These small cattle are used for feasts and sacrifices and for sale to purchase the very few imported articles that the people use. Camels are the really important animals, and these are herded by the warriors of the tribe, who take them to and fro wherever there is a little browse, and once a fortnight to water. The female camel will give milk for up to about three years after calving, and each warrior drinks about three pints a day mixed with blood. Blood is taken from each camel not more often than once a month and only about a pint is taken. This supplies all the food and liquid that the men need.

The elders, women and children live in the main camp. This does move from time to time, but not very often as it has to be within reach of water. Four times a year the camels and their attendant warriors come into the main camp for the feast of Soreo, so that the various members of the group may be kept in touch. Presumably the camels push their affairs rather further, but the men and women remain in seperate camps, and it is not until a man has served as a warrior for at least 14 ycars that he becomes an elder and may marry. Every 14 years at the great feast of Nabo a new group of elders is promoted from the warriors who have served their time.

The Rendille are an ancient people, perhaps the oldest in Kenya. According to their own traditions and recorded prayers at sacrifices, they are a peace-loving people, only resorting to force in self defence. They ask little of life, but that little is being increasingly denied them by the relentless progress of 'desertification'. Already some go to school and doubtless find the comparative security of life in a factory and slum dwelling easier than that among the thorns and hot stones of the camel camps. We can but hope that they will retain the courage, integrity and self-command that life in the desert seems to teach. For those who remain we must say 'Amen' to their prayers that God will send them leafy bushes and peace within their borders.

Priscilla Allen.

Bees by Mr J. Nightingale

Mr Nightingale has made a life-long study of Bees, and gave us a most interesting lecture on them. In East Africa the older Bee-keepers, he told us, were wise men full of knowledge not only of Bees, but the plants and their various properties. Ownership of hives was known and respected. But with the breaking down of boundaries and with strangers wandering all over the country, there has been much poaching - 'vandalism' was the word he used - and with the spread of population, Bees, like so much of our wild life, have suffered from the destruction of their habitat. Besides flowers, water is essential to Bees, and they made regular migrations from the dry country in time of drought to higher country where food and water were still obtainable. These patterns have largely been broken up. Dombeya and Hibiscus make delicious honey, and so do many labiates and the various Acacias in their season. The plains between the Kamba Hills and the Coast were, and still are, renowned for their honey, as are, though much deteriorated, the Kerio Valley and the country of the West Pokot.

Honey is a most valuable food and also has ceremonial uses. Each tribe has its own methods of making hives and harvesting the honey. Unfortunately in most cases the whole contents of the hive, the honey and the brood-comb mixed with dead Bees and rubbish of all kinds is just shoved into a skin bag and used only for making beer. As honey it is quite unuseable. There is no possible way of filtering it, and heating it, which is sometimes recommended, destroys the goodness of the honey and releases all kinds of unpleasant flavours. Any honey that traders may get hold of is often adulterated with mashed potato and polluted in various ways.

Much needs to be done to encourage and improve the production of honey. African Bees have a reputation for savagery, but attempts to introduce Bees from temperate countries have always failed, and we must learn to manage those we have. Strains existed which were gentler and more tractable, but poaching and vandalism have put a high survival value on fierceness, and the gentler strains seem to have died out. Mr Nightingale suggests that areas might be set aside furnished with small hives, simply to bring about an increase in the number of Bees. Perhaps if placed in a sisal plantation such hives would not be likely to be poached, as sisal honey is very nasty.

Mr Nightingale had designed a hive which is half-way between the old Bee-barrel and conventional hive. It is a simple box with slats across the top on which the Bees build their combs and which can be lifted out and harvested. Mr Nightingale thinks it is important that these slats should be 19 inches (48.26cm) long as that is the standard length in other countries and if at a later time people started to use the whole frame, the slats would already be the right size. He would also like to see a scientist appointed for at least five years to study the whole subject. The usual two year contract would not be long enough.

Our thanks go to Mr Nightingale for coming to Nairobi and giving us a most informative lecture on this interesting subject.

'Corvinella'

REQUESTS FOR INFORMATION

BAOBAB TREES

I am interested in the natural regeneration of Baobab trees, Adansonia digitata and am trying to do some experimental work on seedling establishment of this species. I would be glad to hear if any member has succeeded in germinating Baobab seeds, and if so, how long they took to germinate, and whether or not any pre-treatment was applied. I would also welcome any observations on seedlings or saplings in the field, such as density, size, degree of shading from surrounding vegetation, grazing pressure etc.

Dr M. Fenner, Botany Dept., P.O. Box 43844, NAIROBI

HONEYGUIDES

Tony Diamond is studying breeding and guiding behaviour in honeyguides, particularly the Black-throated Honeyguide, and is anxious to find sites where these birds are regularly observable. If anyone knows of such sites, preferably within 2 - 3 hours drive of Nairobi, could they please get in touch with him at Zoology Dept., P.O. Box 30197, NAIROBI.

SCOPUS

The December issue of Scopus has just been published, its contents are as follows:

D.J. Pearson. The first year moult of the Common Sandpiper, Tringa hypoleucos in Kenya.

P.L. Britton, The Madagascar Pratincole Glareola ocularis in Africa.

G.C. Backhurst & D.J. Pearson, Ethiopian region birds attracted to the lights at Ngulia Safari Lodge, Kenya.

D.E. Pomeroy, Marabous associated with vulture parties in East Africa.

L.H. Brown, The White-winged Dove, Streptopelia reichenowi in SE Ethiopia, comparisons with other species, and a field key for identification.

Short communications:

P.L. Britton & H.A. Britton, An April fall in Palaearctic migrants at Ngulia.

There are also a few 'Notices' including information on the forthcoming annual bird report with details of the type of records required.

ANNUAL GENERAL MEETING

The 68th Annual General Meeting of the Society will be held in the Lecture Hall, the National Museum, Nairobi on Monday 13th March 1978 at 5.30 p.m. Nominations for Office Bearers and Members of the Executive Committee and notices of matters to be included on the Agenda should be sent to the Secretary, P.O. Box 44486, Nairobi to reach her before 20th February 1978.

SOCIETY NOTES

1978 Subscriptions The Secretary/Treasurer would like to thank all those who have sent in their subscription renewals early. This does help the office a great deal. Subscriptions fall due on 1st January 1978, and a renewal notice is included in this Bulletin. If you have to resign from the Society, please let us know, it saves a lot of time and money for postage.

'Faces of Kenya' the fabulous new book by our member, Mr David Keith Jones is reviewed on p. 14 of this issue. Members will be able to purchase it at a special discount price of Shs. 180/- and up-country members are asked to include Shs. 10/- for packing and postage. Place your orders now with the Secretary - the books should be available in the second half of January. A real bargain !

Journal No 161 needed urgently We are in urgent need of extra copies of Dr D.E. Pomeroy's paper, Marabou Stork, Leptoptilos crumeniferus breeding colonies in Uganda, printed in our Journal Vol 31 no. 161. Unfortunately the printer only supplied 910 copies instead of the normal 1100, so we cannot supply the overseas institutions with this number. Any of you having a copy of this Journal part and not needing it is kindly requested to return it to the Secretary. Thank you.

Informal Notes are still available in the office. Designed by Jean Lock, they are very attractive and ideal for sending short notes overseas as they weigh under 10g. Sets of 12 cards (2 of each design) with envolopes cost Shs 10/- each. On sale at most Society lectures as well.

'Lake Nakuru' by Charles A. Vaucher continues to sell well. An ideal book to give to friends as a souvenir of this wonderful National Park. Cost : 50/- per copy for members.

'Medicinal Plants of East Africa' by Dr J.O. Kokwaro also is a great favourite. Have you bought your copy yet ? Only Shs. 55/- for the soft back and Shs 85/- for the hard cover. Available in the Office at the National Museum and at most lectures.

Functions - Important Notice to Campers Due to the cost of postage, it is now a policy of the Society not to supply camping information for Society trips if a stamped addressed envelope is not included with the form signing up for each field meeting. We regret having to do this, but it has come to our notice that some members regularly do not include one, and our Functions Organizer does not have time to write out large numbers of envelopes for those who forget their stamped addressed envelope. When she has over 60 camping slips come in, you can see what a difference these make. While on the subject of camping trips - any ideas for good areas to visit or for a day trip or lecture ? We are always willing to hear from you !

Application Forms are included with this Bulletin. Please hand them to friends who do not know the Society exists - every new member helps us to help you. In 1977 we had our largest membership ever, so let us try to make 1978 even more successful.

Posters are still available in the office, free to any member who knows of an office or club who will put one up. They are very attractive, so please call in and collect one (or more !)

Car Stickers We still have plenty in stock - only Shs 2/- each !

New Journal Parts The following are included with this issue:

J.S. Ash and O.M. Ashford, Great Black-headed Gulls Larus ichythaetus and Red-necked Phalaropes Phalaropus lobatus inland in Ethiopia. Vol 31, No. 162, 15th October 1977

G.C. Backhurst, East African Bird Ringing Report 1974 - 77. Vol 31, No. 163, 31st October 1977.

NEW MEMBERS

Local Half Year Members - 1977

Dr Willem H. Brakel, Zoology Dept., P.O. Box 30197, NAIROBI
Mr F.N. Bruce-Miller, P.O. Box 526, BUNGOMA, Kenya
Dr Michael Fenner, Botany Dept, Kenyatta University College, P.O. Box 43844, NAIROBI
Mr and Mrs P. Gerrard, P.O. Box 41968, NAIROBI
Mr David C. Halsted, U.S. Embassy, P.O. Box 9123, DAR ES SALAAM, Tanzania
Mr Richard G. Lloyd, Industrial Development Bank, P.O. Box 44036, NAIROBI
Mr Malcolm Mtterick, P.O. Box 30197, NAIROBI
Mr R.B. O'Meara, P.O. Box 47226, NAIROBI
Miss Mary P. White, A.G.H.S., P.O. Box 109, KIKUYU, Kenya

Local Half Year Member - Junior - 1977

Miss Elizabeth Migongo, Zoology Dept., P.O. Box 30197, NAIROBI

Local Full Members - 1978

Dr A. Bagshawe, P.O. Box 47759, NAIROBI
Miss Karen Bell, T.I.L.L.M.I.A.P., P.O. Box 46727, NAIROBI
Mr C.A. Gardner, P.O. Box 42281, NAIROBI
Miss Helene Holtz, P.O. Box 41537, NAIROBI
Mrs M. Hull, P.O. Box 30099, NAIROBI
Miss R.S. Kiwanuka, Unicef, P.O. Box 44145, NAIROBI
Mrs Anna Merz, P.O. Box 24897, NAIROBI
Mr B.P.N. Plumbe, P.O. Box 42759, NAIROBI
Mr and Mrs Roger Rose, P.O. Box 40112, NAIROBI
Mrs Loretta Tremlett, P.O. Box 335, SOTIK, Kenya
Mr Peter Wirtz, P.O. Box 33, NAKURU, Kenya

Local Junior Member - 1978

Sohrab D. Tajdin, Hall 12, Room 218, P.O. Box 30344, NAIROBI

Overseas Full Members - 1978

Mr David Easterbrook, Box 122, University Station, Syracuse, New York 13210, U.S.A.
Mr Simon Stewart, Greenclose Farm, Wimborne, Dorset BH21 2AL, UK

SOCIETY FUNCTIONS

Monday, 9th January 1978 at the Museum Hall, Nairobi at 5.30 p.m. Mr Simon Stagg, B.Sc will show a film on 'Breeding Colonies of Great White Pelicans at Lakes Nakuru and Elmenteita'. Mr Stagg will introduce the film and give an account of his work.

27th/29th January 1978: Week-end visit to Eburru. Camping by kind invitation on the farm of Mr and Mrs R. Morgan. Members should be self-contained with all equipment, food and water. It is intended to visit some steam jets in the area and to explore the nearby Eburru Mountain forest. Members wishing to take part in this excursion should please fill in the enclosed slip and return it to Mrs A.L. Campbell, P.O. Box 14469, Nairobi with a stamped addressed envelope before 12th January. Further details and route map will be sent to applicants after that date.

Monday, 13th February 1978 at the Museum Hall, Nairobi at 5.30 p.m. Dr J. Darlington will give an illustrated lecture on 'Mound-building Termites'.

18th/19th February 1978 Camping week-end at Selengai. Leader Prof. and Mrs N.J. Skinner. Members must be self-contained as above. Those wishing to take part in the field meeting should please fill in the enclosed slip and return it to Mrs A.L. Campbell, P.O. Box 14469, Nairobi with a stamped addressed envelope (seperate from the above). Deatils of the camp will be sent after 1st February 1978. This trip is subject to permission from the Game Department.

N.B. Due to cost of postage no camping information will be sent unless stamped addressed envelopes are included for each field meeting.

Monday 13th March 1978 at the Museum Hall, Nairobi at 5.30 p.m. ANNUAL GENERAL MEETING followed by a film show (to be announced)

24th/27th March 1978 Camping and exploring Ol Lolokwe over the Easter week-end. Leaders: Mr and Mrs L.A.S. Grumbley. This excursion is subject to permission by the D.C., Isiolo.

Sunday 9th April 1978: 'Dudu Crawl' in the Nairobi area. Leader: Mr M.P. Clifton. Full details later.

WOULD ALL MEMBERS PLEASE SIGN THE ENCLOSED INDEMNITY CLAUSE AND RETURN IT TO THE SECRETARY. THANK YOU.

THE EAST AFRICA NATURAL HISTORY SOCIETY

Chairman: J. S. Karmali
Vice Chairman: Dr J. Kokwaro
Editor, Jl E. Africa nat. Hist. Soc. Nat. Mus.: Mrs J. Hayes
Secretary/Treasurer: Miss D. Angwin
Librarian: Mrs J. Hayes
Ass. Secretary/Treasurer: Mrs D. M. Collins
Executive Committee (in addition to the above): Miss P. M. Allen, G. C. Backhurst (*Ringing Organizer*), Mrs A. L. Campbell, M. P. Clifton (*Editor EANHS Bulletin*), Dr J. Gerhart, Dr J. M. Mutinga, Dr D. J. Pearson, J. F. Reynolds.
Co-opted Members: Mrs H. A. Britton (*Nest Record Scheme Organizer*), Dr A. W. Diamond, Dr A. Hill, J. Kahurananga, J. Maikweki, S. Muchiru, Mrs F. Ng'weno, D. A. Turner.
Journal Editorial Sub Committee: Mrs J. Hayes, Miss D. Angwin, Mrs V. Balcomb, M. P. Clifton, Dr A. Hill, Dr D. J. Pearson, J. F. Reynolds.
Ornithological Sub Committee: G. C. Backhurst, P. L. Britton, Mrs H. A. Britton, G. R. Cunningham-van Someren, Dr A. W. Diamond, A. D. Forbes-Watson, B. S. Meadows, Dr D. J. Pearson, J. F. Reynolds, D. K. Richards, D. A. Turner.
Joint Library Sub Committee (Society representatives): Mrs J. Hayes, Dr J. O. Kokwaro.

MEMBERSHIP

This offers you free entry to the National Museum, Nairobi; free lectures, films, slide shows or discussions every month in Nairobi; field trips and camps led by experienced guides; free use of the Joint Society-National Museum Library (postal borrowing is also possible); reciprocal arrangements with the Uganda Society's Library in the Uganda Museum, Kampala; family participation: wives and children of members may attend most Society functions; one copy of the *EANHS Bulletin* every two months; a copy of each *Journal* published during your period of membership; the Society controls the ringing of birds in East Africa and welcomes new ringers and runs an active Nest Record Scheme; activities such as plant mapping and game counting are undertaken on a group basis. Membership rates are given at the foot of this page.

JOURNAL

The Society publishes *The Journal of the East Africa Natural History Society and National Museum.* Each issue consists usually of one paper, however, sometimes two or more short papers may be combined to form one number. The aim of this method of presentation is to ensure prompt publication of scientific information; a title page is issued at the end of each year so that the year's papers may be bound together. Contributions, which should be typed in double spacing on one side of the paper, with wide margins, should be sent to the Secretary, Box 44486, Nairobi, Kenya. Authors receive twenty-five reprints of their article free, provided that these are ordered at the time the proofs are returned.

E.A.N.H.S. BULLETIN

This is a duplicated magazine issued six times a year, which exists for the rapid publication of short notes, articles, letters and reviews. Contributions, which may be written in clear handwriting or typed, should be sent to The Editor (*EANHS Bulletin*), Box 44486, Nairobi, Kenya. Line drawings will be considered if they add to the value of the article. Photographs cannot be published.

SCOPUS

The Ornithological Sub Committee publishes this quarterly bird magazine. Cost: EANHS members KShs. 50/- p.a., non-EANHS members KShs. 75/- p.a. All correspondence to D. A. Turner, Box 48019, Nairobi, Kenya.

MEMBERSHIP SUBSCRIPTION RATES

Life	One payment: Kshs. 750/-
Institutional (schools, libraries) .	annual payment: Kshs. 50/-
Full	annual payment: Kshs. 50/-
Junior (full-time student, no *Journal* supplied) . . .	annual payment: Kshs. 10/-

Subscriptions are due 1st January. From 1st July you may join for Kshs. 35/- and receive publications from that date. Application forms for membership are obtainable from the Secretary, Box 44486, Nairobi.

QH
7
E135
SI
NH

EANHS

BULLETIN

SMITHSONIAN
APR 15 '68
LIBRARIES

A monthly publication of the East Africa Natural History Society, Box 44486, Nairobi, Kenya. Price 2 shillings

NOTES FOR CONTRIBUTORS

Members of the Society (and non-members) are asked to follow these simple instructions when writing articles or letters for submission to the *Bulletin*. The *Bulletin* is presented each month in a duplicated format: the paper size is 20.5×23 cm (10×8 inches), line drawings can be reproduced but the area should not be more than 17.5×23 cm. Lettering on figures should preferably be in 'Letraset', neatly done in Indian ink or left blank: if the last method is followed, the lettering should be indicated on an overlaying sheet and should *not* be done on the figure. Figures should be prepared on good quality white writing paper and not on Bristol Board or other thick material. Whenever plants or animals are mentioned the scientific name should also be given but not in parenthesis. Trinomials should not be used unless there is good reason to do so. Author's names of species are not required.

Contributions may be typed (preferably) or written clearly and should be sent to: G. C. Backhurst, Box 29003, Kabete, Nairobi, Kenya. Receipt of contributions will be acknowledged.

CONTENTS

Natural Dyes from the Yeheb Nut 26
A Year of Wagtails 27
Bird Notes for Beginners 30
Unusual Black Kite Behaviour 32
Wahlberg's Eagle 33
Butterfly Migration 34
Lake Hannington 36
Letters to the Editor 36
Book Reviews:
Origins 39
A Field Guide to the Coral Reef Fishes 40
The Birds of Malawi 42
Society Lecture Notes 43
Society Notes 46
Annual General Meeting 48
Wanted 48
New Members 48
Society Functions 50

NATURAL DYES FROM THE YEHEB NUT

CORDEAUXIA EDULIS

For centuries, all over the world, many beautiful and colourful dyes were used by man. The colours available to him were to a very large extent governed by the flora naturally in his area, as most of the old natural dyes were plant based. The use of these natural dyes is now, to a large extent, a thing of the past. With the advent of synthetic dyes the knowledge of those plants which produced natural colours ceased to be passed on to the younger generations, with the result that much of this information has become irrecoverably lost. Africa is no exception.

I have over the last year endeavoured to find out as much as I can about those dyes previously used in Kenya, much of my information being gleaned from private individuals and also from the Herbarium in Nairobi.

Recently, Dr Peter Bally of the Nairobi Herbarium very kindly let me have a sample of the dried leaves of the Yeheb Nut, Cordeauxia edulis, which he collected in the Ogaden region, an area presently disputed by Ethiopia and Somalia. According to Dr Bally the leaves of this plant are used by the Somalis for a natural purple dye, and he suggested that I should try some experimental dyeing with the dried specimens. Interestingly enough the nut of this plant is also nutritious to both humans and livestock.

The sample leaves were small and finely spotted with purple dots which, though almost invisible to the naked eye, were easily seen through a magnifying glass. I divided them into three parts so as to enable me to experiment using three different methods tabled below : -

Method 1 I took one skein of handspun wool weighing approximately 50g which had been mordanted with chrome (Potassium dichromate), and placed this in a clay pot containing warm water and the first batch of leaves. This was then brought slowly to the boil. The wool began to turn purple almost immediately boiling commenced, and though I have dyed wool with many local natural dyes using this method, I was unprepared for this extraordinarily fast reaction. Unfortunately, I left the wool in far too long and instead of obtaining the deep purple I had hoped for I got a mauve-brown instead.

Method II As before I took a skein of homespun wool, this time with no mordant, and put it into a clay pot containing warm water and the second batch of leaves. This was then heated and brought slowly to the boil. Having now been warned of the fast reaction

I lifted the lid off the dye pot earlier than I would for other dye material. I could hardly believe my eyes when, instead of a delicate purple which I had anticipated, the skein of wool had turned pink.

Method III I then placed the remaining batch of leaves into another clay pot containing warm water, and to this added a skein of homespun wool mordanted with Alum (Potassium aluminium sulphate). This was brought slowly to the boil and after twenty minutes I removed the skein of wool as it had turned a light purple. I then realised that the dye in the bath had not yet been exhausted so I placed a second skein of wool, mordanted with alum, into the pot. I watched it turn purple and then decided to add Tin (Stannous chloride) to see if I could brighten the colour. I replaced the lid on the dye pot and left it to boil for 15 minutes. On returning I was amazed to find my skein of wool was now no longer purple, but yellow !

From my own past experience a plant used for dyeing will produce only one basic colour showing slight variations when different mordants are used. Cordeauxia edulis is remarkable in that it can produce such immensely contrasting colours which make it a most exciting plant. I understand that Cordeauxia edulis now grows in Kenya so I hope eventually to obtain more leaves for further dyeing experiments.

I am very keen to learn what mordants the Somalis use when dyeing with these leaves and also what utensils they use. If there is anyone who knows this I would be most grateful for the information.

Mrs Lorna Hindmarsh,
P.O. Box 81, NJORO, Kenya

A YEAR OF WAGTAILS

African Pied Wagtails - Motacilla aguimp

When I last wrote about the Wagtails in the January/February 1977 Bulletin (p. 4 - 5), I had recorded their activities in 1976 up to the time we left to go on safari on 10th September, leaving the nest in a cardboard carton in the bow of our small open boat 'Honey Bee', the nest containing two eggs laid on 9/10 September. I have no record of how these fared. We returned on 24th October to find three fledglings in the nest, about 10 days old. Unfortunately we went goggling, taking the nest with us, and as usual our dogs, but the dachshund bitch had had pups while we were away, and for some reason she raided the nest when we were goggling and killed all three. We felt terrible on our return when the parent

Wagtails came out to meet us !

At the end of September we launched our fishing boat 'Tern' again, much to the joy of the Wagtails, but they did nothing about mating or nesting until nearly the end of December, when they built a new nest in their old spot in the glovebox behind the steering wheel in 'Tern'.

Thus the Wagtails started 1977 in great style by laying their first egg on New Years Day, and had laid three on 3rd January. These hatched out on 16th January and were flying by the 29th. Their second clutch of three eggs were found on 13th February; the actual date laid was not recorded, but they hatched two out on 21st February, so one can presume they were laid between 5th and 7th February, very soon after the last lot flew off. The Wagtails fly between the fishing boat 'Tern' and the open boat 'Honey Bee' anchored about 20m away, both boats being the territory of the parents, who are really very nasty to their poor young when they beat them off. Wagtails are now busy building and nesting in various other boats belonging to Watamu residents up the beach. Some encourage them, but most people seem to turf the nesting material out and think the Wagtails are messy. They are - very messy - and those in 'Tern' particularly seem to like resting and roosting on the fishing chair which is covered over by a canvas cover for protection, thus giving shade and protection from wind and rain to the Wagtails. But they do not improve the state of the seat cover ! We always have to apologise for them to any friends we take out fishing.

Of course, when we have young birds on board they have to come fishing with us, and there is a lot of chat from anxious parents when we prepare to leave and very often choice worms are wasted. We always cover the nest box over with a cloth, hoping the fledglings will think it is still night, but by about 10.00 a.m. we have to turn and head for home fast so that they can be fed. Pitiful hungry calls and wide open red-lined beaks are enough to melt even the hardened fisherman's heart, or perhaps that is what I hope; but as I am the driver they have to 'lump it' and come home. We are greeted by very excited parents : 'Why are we so late, and what do we think we are doing keeping their babies from their breakfast, not to mention the extra work involved in collecting insects in the hot sun !'. The parents are now so tame that they come out on to the boat while we are there, and reply to our 'whistle chat' when we swim round them in the mornings.

To return to dates. The two hatched on 21st February, were raised successfully and duly flew off after two weeks. The next lot of three eggs were laid between 17th and 19th May, but on 27th May we had to take 'Tern' out of the water as the South East

Monsoon was by then blowing very hard and the rain was heavy. So we carefully took the nest out and put it in a cardboard carton in the bow of 'Honey Bee' where they had nested before, and had accepted a similar transfer the previous year, except that in 1976 the nest had contained half-grown fledglings. This time we were not so lucky, and they abandoned their eggs. On 30th May the eggs had disappeared - could these have been taken by some predator or cleaned out by the parent birds themselves ? It looked as if they were re-building their nest, but shifting it to the opposite corner of the carton. On 2nd June we looked again, and they were definitely re-building and had almost completed a new nest. The first egg was laid on 4th June and on the 6th there were three. Again only two hatched out. On 26th June, sadly the nest was empty once again; so it definitely looked as if something had got in and robbed it. Immediately these industrious little birds set to work and rebuilt their nest, this time, still in the carton, but on the other side again over their original nest. They laid again on 29th June. We had to go to Nairobi on that day, but found three eggs in the nest on our return on 3rd July. These hatched on 15th July and all three flew off.

At the end of July we left to go to the U.K. leaving the boat in the water in the care of neighbours, just for the Wagtails and so that we could keep the records going for the year. Sometime around mid-August there was a bad storm with high seas, and the nest containing three eggs was tipped over into the accumulated water. We arrived back on 26th September, removed the soggy remains and replaced it with a new cardboard carton. They were slow to re-build this time, but eventually completed a new nest on 19th October and on the 24th of that month there were three eggs in it.

On the evening of 6th November very newly hatched young were found, but not counted. On 12th November we found one dead, presumably this had fallen out of the nest into the water at the bottom of the boat, leaving only one in the nest. However, a few days later two fledlings were being taught to fly, so we could only think that once again the nest had been tampered with, one remaining in the nest, a second must have managed to get behind the carton, while the third drowned. We then closed the carton right down, leaving only a very small entrance. Four eggs were laid between 22nd and 24th December and hatched on 8th January, which will start our records for 1978.

To recap - in 1977 a total of 28 eggs were laid over nine matings, from which 15 young were sucessfully raised. The last four hatched will be carried over to the 1978 records and not counted in those for 1977. They may not live anyway. Over the last two years we can say they have not done badly - two parent

birds - we have no proof that these are the same two, but there is no reason to think otherwise, have laid a total of 55 eggs and successfully raised 39 young.

Plot No. 22 further up the beach from us seems to contain the nursery group of Wagtails - over 20 at a time are seen feeding and playing on the lawn there, but I fear that not many of those are so lucky in having doting birdwatchers to look after them and their nests. Perhaps others up the beach will follow suit when I show them our records and ask them to record too.

It is of interest to note that during 1976 most of the matings produced four eggs in each clutch, while during 1977 apart from the last lot, it was only three at a time. Perhaps mother is running down and getting old. We should really try to get them marked so that we would know for sure.

Anne V. Donnelly,
P.O. Box 420, MALINDI, Kenya

BIRD NOTES FOR BEGINNERS

Someone raised the question in (of all places) our Executive Committee last month, why bird-watchers like to have lists to tick. Other naturalists, it was maintained, do not do this. The answer is obvious, once you think of it - we do not collect. Of course, a little collecting is done by special people and for Museums, but most of us are fortunate in that we do not have to kill the creatures in which we take an interest. Yet without collecting you cannot learn. The botanist and entomologist need to collect. What then can we do ? We make lists, or tick lists made by other people, and keep careful notes. This is done in two stages, like any other collecting, first in the field and then in the study.

First you must introduce some method into your field work. You must leave off making lists on stray pieces of paper or the backs of cigarette boxes. I well remember one of our leading ornithologists buying me my first note book and insisting on my using it, and I have kept to that type and size ever since. This makes it easier to store the books tidily. On the inside cover I write my name and address and an appeal to anyone finding it to return it to me (for its loss would be a major calamity). Then I leave a blank page on which when the book is full, I write a rough 'Table of Contents', a list of the chief places visited and their dates. Then comes the book itself, and all field notes must come into this and nowhere else. I write the birds' names on one side of an open page and on the other I write any relevant

notes, such as numbers observed, what the bird was doing, and in the case of an unusual bird, why I thought it was what I thought it was - 'red eye noticed' or such. I find that these notes tend to expand. You include distances from camp sites and who was with you. Besides new birds you find new friends noted down. All this will be very rough and untidy, often written in a moving car or by poor light after dark.

But when you arrive home you must sort out these notes as an entomologist or botanist sorts out his specimens. There are various ways of doing this. I began by listing my birds in a 'Muster Roll' such as was used in those days for organising farm labour. This got me into a terrible muddle and I had to abandon it. Birds have little in common with farm labour - except (in those days) a habit of speedy departure. Ever since then I have used loose-leaf binders of a convenient size, and plain lined paper without headings, columns or boxes, which either have to be left empty or do not give you enough room. Each species that I have seen has one or more pages, and onto these all the important notes from my field note book are transferred. I naturally arrange the species in the order used in Praed & Grant. Myles North, I remember, used the page number from Jackson's '<u>Birds of Kenya and Uganda</u>'. Perhaps the new annotated list which our Society is hoping to publish may form a basis for the future. In any case you will become familiar with the order and able to refer quickly to any species and see what you have seen and noted of it.

Some people use cards for this purpose, and as a professional librarian I am well acquainted with cards. They are all very well if you have a large cabinet and a good table to work at, but in a private house and especially for someone liable as so many of us are, to sudden changes of abode, cards seem to me far too bulky and vulnerable. I can work with (or play with) my binders in bed or in an armchair by the fire, and if I drop one there is no great harm done, while with cards you must sit at a table and if you drop a box full all hell is let loose. But whatever you choose it must above all be capable of indefinite expansion, as it is 'unthinkable' not to be able to add another page for the Fiscal Shrike because you cannot get any more paper with the right sized holes. So if you choose a binder let it be one that is and will probably remain easily obtainable.

You will make these notes as full as your time and energy allow. Should you ever become a proper 'ornithologist' they will form the material of your future books and papers. Should you be a poor tired business man you may hardly be able to write the place and date. But at least force yourself to put that down, and if you have more energy you will add more details, and may include what other people told you, tips on identification and

references to books and journals. You will not of course make a note every time you see a Bulbul, but in a new place it is as well to record it, and if you find, as I know does happen, that you have put down nothing about some common bird for two or three years, try to record something for very shame, even if it is only a couple of Crows on your neighbour's dustbin. (Do you often see Crows down your road ?) As time goes on you will find these records of ever increasing interest, and without them most of what you see will of necessity be forgotten.

'Corvinella'

UNUSUAL BLACK KITE BEHAVIOUR

We have recently encountered some rather unusual behaviour from a Black Kite, Milvus migrans, nesting near our flat on Riara Road near Dagoretti Corner, Nairobi. On 14th November the nest was seen in a eucalyptus tree about 16m high. On 2nd December my husband Peter climbed an adjacent tree to better observe the nest: there he could easily see an adult in incubating posture. This bird remained quietly on the nest only moving its head to observe Peter. The other adult was not seen.

On 4th December I was weeding my garden which is about 8m from the base of the nest tree. Suddenly my head was hit from behind with such force that I almost fell over. I looked up to see an adult Black Kite turning about 7m away, getting ready to attack again. With arms flailing above my head I ran to get Peter. He inspected my wounds and discovered superficial scratches which bled slightly and eventually swelled. He immediately returned to the garden with me. The Black Kite was joined by another adult and the two of them swooped at us, though neither made contact as we were protecting ourselves. When we were joined by two more Caucasians, the birds chose to remain perched in a close by tree. Half an hour later, Peter was observing the nest from our immediate back yard when he was struck from behind by one of the Kites. Returning around the side of the building he was struck again. These attacks also drew blood and observations ceased for the day.

I warned my housegirl about the birds as she does a lot of work in the yard. She indicated that no Africans had been attacked. A few days later, around 11th December, she reported to me that two white women in the yard next to ours had been sunbathing and had been attacked by the Kites. They ran screaming into the house. On the 13th December a white neighbour was hit in the head as she hung up clothes outside. Again my housegirl reported that no Africans had been attacked.

While sitting in the back yard on 16th December, I was again struck on the head with equal force to the previous attack. Again the scratched drew blood and swelled slightly. When the 'shamba' man came out to rake the yard, the birds flew near by but did not attack again. The following day we learnt that the white neighbours who had been attacked while sunbathing had paid our 'shamba' man to destroy the nest. This he did, and killed two young, still covered with down, measuring about 20 - 35cm long. A guess was made that they were about two weeks old.

On 18th December we were inspecting the damage done the previous day when I was struck from behind again by the Kite and with more force than ever before. The wounds were deeper too. Later in the morning a white woman, foreign to the flats, was walking in the back when the Kite attacked her. It was noted that all strikes have taken place within 36m of the nest. I again asked whether the Kite had ever attacked any black persons and again the answer was negative. The Kites have since been seen and heard around the yard but no one has been attacked.

We wonder if Kites protecting their nest area with such vehemence is a common happening ? We thought it specially strange that they should distinguish between black and white people and wonder if this is related to my blond husband climbing the tree on 2nd December. We would appreciate comments relating to theories or similar experiences.

Peter and Nikki Gerrard,
P.O. Box 41968, NAIROBI.

Mr Cunninghan van Someren, Ornithologist at the National Museum notes the following :
'Other birds of prey have been known to attack persons in the vicinity of the nests. Last year we investigated complaints from the Convent School where Kites were attacking children of all races particularly when they were taking their sandwich break. The birds were naturally after the food !' Ed.

WAHLBERG'S EAGLE

The Wahlberg's Eagle, Aquila wahlbergi is a medium sized raptor, which in southern Africa is commonly seen in its breeding season from August to February. During this period it is possibly the most numerous breeding raptor in the sub-continent. However, when it leaves the breeding area with its young in March - April, little is known of where it moves to. In Southern Africa, Peter Steyn suggests they fly North, while in Kenya, Dr. Leslie Brown suggests that they fly South.

In an attempt to obtain some information on the movements of this Eagle, we are embarking on a colour tagging scheme in which a coloured strip of Darvic plastic is fixed to the 'wrist' section of the wing. The tag will be visible in flight and while the bird is perched. The main colour of the tag will represent the area in which the bird was captured and tagged, while its individual number will be engraved on the tag in a contrasting colour. This will allow a bird to be traced to a particular area, while closer observation will enable the individual recognition of the bird.

We are therefore, appealing to all bird watchers in the central region to keep a look out for any Wahlberg's Eagles which may have a coloured tag attached to one of its wings. The information desired is : the location of the sighting, colour of the tag and on which wing, and the individual number engraved on the tag.

Anyone seeing a marked Eagle is asked to kindly send this information to : A.J. Antony, c/o St. John's Road, EDINBURGH, EH12 8BE, Scotland. All correspondence will be acknowledged.

BUTTERFLY MIGRATION

For many years people have recorded migrations of insects, particularly butterflies. The most common butterfly which migrates in East Africa is the African Common White, Anapheis creona, commonly seen in large numbers in the dry country. It is often thought to be the adult of the Army Worm, but this is the small brownish moth Spodoptera exempta.

The Common White is often accompanied by other species of butterfly, which also sometimes migrate on their own. The most common one of these is the African Migrant, Catopsilia florella, which was migrating on its own through Nairobi just before Christmas, and was joined by the African Common White during January. The Diadem, Hypolimnus misippus, the Long-tailed Blue, Lampides boeticus, the African Common Blue, Synterucus telicanus, and the Jokers, Byblia ilithyia and B. acheloia often occur together. Two other species which are not so obvious, but which do migrate in large numbers are the African Monarch, Danaus chrysippus and the Painted Lady, Vanessa cardui.

Why do butterflies migrate ? This is a question which is difficult to answer, but it is thought that the adults are looking for more foodplant after the previous generation have eaten it all, or in other words 'labensraum'. This is not at all certain as quite a proportion of the recorded migrations consist entirely of males.

How far do these butterflies fly ? The record is so far held by the Monarch Butterfly of North America where the adult which hatches out in southern to central Canada and flies South to Texas or Southern California, there to hibernate through the winter and then fly part the way back in the spring, a trip of 6 - 8,000km ! It is not suprising that this betterfly has, on occasion, been found in Europe where it is supposed that they either flew the Atlantic with the help from a strong backing wind, or hitched a lift on a ship.

Mr R. MacGrogor from Elburgon, Kenya sent me some specimens from the ice fields of Mount Kenya which he had collected during January 1978. These are very interesting as it shows to what length some species go to migrate. From below Lenana he collected a pair of African Common Blues, a female African Common White, two male Grass Yellows, Eurema desjardinsi and a male Joker, Byblia ilithia. At Terere Peak he collected one male and two females of the above Joker, one male and two females of the African Common Blue and a female of the Long-tailed Blue. From this it is obvious that these species were in a migration together as they were found in the snow, still alive, though weak. One female Blue Pansy, Precis oenone was also collected on the expedition near Mackinder's Valley which is rather suprising as this is usually a plains species, being found typically in the dry dusty areas of the East African plains. Presumably it was trying to migrate across the mountain too.

In an accompianing letter Mr MacGregor tells me that there were 'several Painted Ladies between 11,000 and 12,000ft', and also states 'I also saw but didn't collect, several specimens of Precis hierta (Yellow Pansy) flying about ..'. The Painted Lady, a species which occurs all across Africa, Europe, Asia and down to Australia and across to North America, occurs at all hights and is one of the highest recorded species in the Himalayas. That the species is regularly taken in Iceland is proof enough that it can withstand these temperatures though none survive the winter in England. That the Yellow Pansy is found at this height is very interesting as it is associated with the Blue Pansy in dry country. The Eyed Pansy, Precis orythia was not mentioned by Mr MacGregor in his letter and it is only this species that I would expect over about 3200m, or above the tree line. As the Yellow Pansy was flying and the Blue Pansy was comatose also shows the formers better tolerance of cold.

M.P. Clifton,
Entomologist,
P.O. Box 40658, NAIROBI.

LAKE HANNINGTON

Lake Hannington is now Lake Bogoria. When I first went there in 1948, the local people told me that name. When Bishop Hannington camped near its North end in 1885 he made a note in his diary that this was a lake Joseph Thomson had missed. Count Teleki hunted near the North end in 1887 and remarked on the numerous Lesser Flamingos, of which he shot 25 for the pot. In May 1893 J.W. Gregory first reported the view from the escarpment at the South East end, and on descending to the lake shore with great difficulty recorded evidence which showed that the Waseges River had just changed its course. Having flowed into Lake Baringo for at least 100 years, it had now started flowing into Lake Bogoria, and ultimately raised the level perhaps five metres. Trees, bush and grazing near the old lake shore were killed amd incrustations on the rocks now shows the maximum level reached by the lake. The level remained high to 1917, and thereafter fell slowly, but the primitive track from the South end to Loboi at the North end was submerged by the 1961 - 62 rains. An excellent new road from a junction 1.6km North of Mugerin via Emsos now leads to the South end of the lake and a track has been constructed right round the lake. Camping places with litter bins have been provided and fees are payable to the Ministry of Tourism and Wildlife. The heavy rains of 1977 raised the lake level at least one metre and parts of the new road which were submerged have been remade. The bridge over the Waseges River was washed away twice during the year, and consideration is being given to a proposal to dam the river and form a new lake Lake Kisibor, formerly the Kisibor Swamp, which would overflow into Lake Baringo.

Mr J.A. Stevens,
P.O. Box 128, KIAMBU,
Kenya.

LETTERS TO THE EDITOR

Dear Sir,

The Need for Ringing African Birds

In his ringing report for 1974 - 7, Backhurst (1977) says that 'ringers specializing in African birds seldom expect or get recoveries'. So far, there have been less than 50 recoveries of Ethiopian passerines although more than 38 000 have been ringed'. In addition, an unreported number of birds have been caught more than once at the same site (controlled).

By contrast, nearly three times as many Palaearctic birds have been ringed, and a significantly higher proportion recovered.

Despite the disappointing recovery-rate for Ethiopian species, I believe that there is much of value to be learnt from ringing them. In the areas of central and southern Kenya which I visit regularly, the Palaearctic species never contribute more than a small proportion of the land-birds present; thus on a year-round basis the Ethiopian species are a much more important part of the total bird fauna. But as yet we know almost nothing about the ecology of the native land-birds of East Africa. That in itself is one reason for wanting to know more. Another is to further our knowledge of tropical ecology, which at present is poor.

There is some evidence, mainly from America and Australia, that tropical habitats contain many more species of birds than comparable temperate habitats. The reasons for this great diversity in the tropics are not known. Several theories have been advanced (Krebs 1972, p. 513, lists six), but much more needs to be known about the ecology of tropical species before an understanding of the causes can be reached. For example, a large number of species suggests that many are specialists, with rather particular requirements. If this is so, then many species would be expected to make seasonal movements in response to changes in their environment, leaving one area for another as it becomes unfavourable. Certainly many species do move, but exactly when or why is largely unknown - except perhaps in the case of Quelea - nor is it known where they go to or how far they travel.

Most tropical species have small clutches compared to their relatives at higher latitudes. They tend, in the current ecological jargon, to show more characteristics of the K - selected species whereas in temperate zones the tendency of towards r - selection (see e.g., Krebs, 1972, p. 580). This has interesting implications for the theory of population dynamics and it would be particularly helpful to know at what age tropical birds die. How high is the mortality-rate during the birds' first, second and subsequent years of life ? Ringing nestlings of garden birds would help to answer these questions.

It might be worthwhile trying to subsidise the ringing of Ethiopian species in order to promote this study.

REFERENCES

Backhurst, G.C. (1977) East African Bird Ringing Report 1974-77. Journal of the East Africa Natural History Society and National Museum. 31 (163) 1-10

Krebs, C.J. (1972) Ecology - the experimental analysis of distribution and abundance. Harper, New York.

Derek Pomeroy,
Dept. of Zoology,
P.O. Box 43844, NAIROBI.

Dear Sir,

I am grateful for the opportunity to comment on Prof. Pomeroy's letter but I will confine my remarks to the question of increased ringing of Ethiopian passerines.

There have, in fact, been 38 recoveries reported from the 38 000-odd Ethiopian passerines ringed in East Africa, needless to say these recoveries have all been in Africa; 16 of them showed no movement at all while the range of movement of the remaining 22 was between 3 and 240km. Pomeroy is correct in saying that the proportion of recoveries of Palaearctic passerines is significantly higher but it is also significant that only 16 recoveries (from 85 599 ringed) have been made in Africa - all but one of these within East Africa. The point is that it is difficult to get recoveries of birds from within eastern Africa: it is generally true that the people in this vast area, from the Sudan, Ethiopia and Somalia south to Mozambique, Zambia and nothern South Africa do not kill small birds to any great extent. It is also important to realise that the density of human population over vast tracts of this huge area is extremely low. There are many additional factors which mitigate against getting recoveries of small land birds in Africa too numorous to detail here.

I am in favour of increased ringing of all birds in East Africa and any help that can be provided will be most welcome by the ringers themselves. However, I think that it is as well to be aware that very few recoveries in Africa will result from increased ringing of Ethiopian passerines for the reasons outlined above. The reasons why significantly more Palaearctic passerines have been recovered, in the Palaearctic region itself, is that in some areas small bird killing is a national sport, in others with high human populations ringed birds found dead are much more likely to be found and reported while in other parts of the region (notably Western Europe) there are many ringers providing a chance to control East African ringed birds. The ringing of birds enables a great deal of information to be gathered besides recoveries: for this reason I strongly support Prof. Pomeroy's plea for subsidy and I look forward to welcoming him into the East African Ringing Scheme.

G.C. Backhurst,
Ringing Organizer EANHS,
P.O. Box 29003, NAIROBI.

ORIGINS by Richard Leakey & Roger Lewin. Macdonald & Jane's. 264pp. 255 illustrations, including photographs in colour and black & white, maps, and diagrams. £8.95 in U.K.

Natural History Society members are accustomed to read in their Bulletin accounts of the activities and behaviour of birds, insects and mammals. In this country we do not need to be reminded that the leading actor in Nature's scenario is man, and that his impact on the other players is fundamental and inescapable. Origins, the recently published work by Richard Leakey, Director of the National Museums of Kenya, and Roger Lewin, editor of the New Scientist expounds the thesis that greater knowledge of our past and the forces which shaped us should help us better to understand ourselves, our innate drives and our potential for good and evil. Leakey is particularly concerned to counter the theory of ethologists such as Lorenz and Tinbergen that aggression is in our genes.

Evidence from archeological sites such as Olduvai shows that 2 million or more years ago early hominids had embarked on the hunter-gatherer way of life, which depended for success on co-operation between individuals. Since then natural selection pressures have favoured co-operation, not conflict. Intraspecific aggression arose as recently as 10 000 years ago, with the advent of the Agricultural Revolution, when the settled life which then became possible enabled man to acquire possessions - and to covet those of his neighbour. During his long evolutionary journey, man has deleloped a highly complex brain which endows him with the intellect to weigh the odds, to opt for tolerance and compassion, or arrogance, aggression - and extinction. It is an intriguing thought that the book's message is that of most of the world's great religions, a message which may now be considered scientifically respectable.

In the course of tracing man's development, the authors give us valuable summeries of archeological sites and hominid fossil finds throughout the world, a precis of Darwinian theory and its most recent refinements (including a word on the highly controversial subject of sociobiology), and information on modern work on the human mind, intelligence and language.

One can make minor criticisms, including a wish that the proof-readers had been more thorough, no unusual complaint nowadays. (They might have removed that unfortunate phrase on p. 10, 'unlike no other animal', and corrected the caption beneath pictures of Darwin's finches on p. 26, which refers to 'upper' and 'lower' pairs, while in fact all four birds are on one line). But in a work of such scope and detail, that would be carping

indeed. If you have ever pondered on prehistory and the avenues of thought which open from it, you will wish to possess this lavishly illustrated book. It will be invaluable for those taking the Nairobi Museum Guide Course.

Readers may be interested to know that Origins is available from the Museum shop at KShs. 200/-, rather less than in town.

J.G.K.

A FIELD GUIDE TO THE CORAL REEF FISHES OF THE INDIAN AND WEST PACIFIC OCEANS. R.H. Carcasson. Collins, 320pp, 48 colour plates.

We have become accustomed to associating high standards with the Collins Field Guide series. This book is no exception, and, in view of the formidable task of attempting to cover an immensely rich fauna of a vast oceanic area, it is probably the best produced thus far.

It has been estimated that between a quarter and a fifth (6 - 7000) of all known species of fish (25 - 30 000) occur in the Indo-Pacific region, which stretches from Africa in the West to southern Japan, Hawaii, the Marquasas and Gambier Island in the East, and includes the Indonesian and Malaysian Archipelagos, the Great Barrier Reef and the islands of the West Pacific.

Carcasson has selected 1800 species for description (almost a third of the estimated total), and has illustrated 400 of these in colour, and a further 337 in black and white. The illustrations are generally excellent and the author is to be envied not only for his scientific, but also for his obvious artistic, talents.

For the majority of people, the usefulness of any Guide Book depends largely on the quality and quantity of illustrations, and thus the first task of an author is to ensure that most, if not all, of the common (= most frequently seen) species are accurately illustrated, preferably in colour. While a suprisingly high proportion of Indo-Pacific species occur throughout the area, it is necessary to re-assure ourselves that the common species of our own Kenya reefs are in fact adequately covered in this Guide.

I spent an interesting and instructive few hours analysing Carcasson's illustrations in relation to the common Kenya reef species. Accepting a possible personal or subjective bias here, of the most commonly seen 150 species (Leslie Brown says he can log 200 in a good day's fish-watching), 115 are illustrated in colour, and a further 22 in black and white, leaving very few (no more than 13 or so) not illustrated. This is a first class

record, by any standards. So far so good, but we must now subject a few selected families (because they are well represented in Kenya waters) to further analysis. I am giving these in tabular form, as the data, which refer to colour illustrations, are easier to digest.

Family	Total number of species illustrated	No. of species illustrated which occur in our area	No. of species illustrated which do not occur
Pomacentridae (Damsel or coral fish)	45	28 (45)*	17
Pomacanthidae (Angelfish)	26	9 (10)*	17
Chaetodontidae (Butterfly fish)	41	19 (21)	22
Acanthuridae (Surgeon fish)	23	15 (21)	8
Labridae (Wrasses)	51	43 (64)	0

*(Figures in parentheses are total number of species recorded for the Western Indian Ocean; data from Smith and Smith, Fishes of Seychelles).

These figures illustrate one of only two criticisms I have of the book. For the novice, finding the right species out of 28 illustrations is bad enough; being presented with an additional 17 which do not occur in the area (but one or more are similar to the ones that do) must make identification a rather bewildering and frustrating business.

We must accept that the Indo-West Pacific Ocean is a Region, and we must also appreciate the sordid financial realities of out times. But in spite of these considerations, one wonders if it might not perhaps have been best for the publishers to have commissioned at least two seperate Guides (one for the Western Indian Ocean, the other for the West Pacific).

There is a brief but informative introduction, a useful glossary, and an illustrated key to Orders, Sub-Orders and the principal families, which is a good idea, but of questionable use.

The system of classification and systematic sequence is a modified version of that used by Munro, Fishes of New Guinea, 1967. Those of us who have been brought up on Smith & Smith

Fishes of Seychelles 1969 will have initial difficulties with the arrangement of families. However, as all arrangements are almost entirely hypothetical and there is little agreement among the taxonomists, finding ones way about Carcasson is only a matter of adaption, albeit with minor irritations (none of which is strictly Carcasson's fault anyway).

An excellent book, then, and one that can be recommended with confidence. My other criticism is the price. I paid Shs. 140/- for my copy (or rather my family did, as it was a Christmas present): one feels that only the addicts will caugh up without blanching.

K.R.B.

Copies of the adove-mentioned book should be available to Society members at a special discount price of Shs. 130/-. Those interested are asked to place an order with the Secretary. Ed.

THE BIRDS OF MALAWI by C.W. Benson & F.M. Benson, sponsored by D.W.K. Macpherson and printed by the Montford Press, Limbe. Soft covers, K. 5.00. 263 pp., coloured frontispiece and fold-out map.

This book, which can be compared directly with The Birds of Zambia in scope, contains a wealth of information on the 620 or so species which occur in Malawi; species not yet recorded but likely in the future are treated in square brackets.

The twenty-odd pages of introductory matter explain the approach adopted, a thorough discussion of habitats and a full acknowledgements section. The systematic list of species accounts naturally forms the bulk of the book. The nomenclature and order followed is that used in The Birds of Zambia. For each species the following information is given : Birds of Malawi number, scientific and English names, page reference to certian relevant works, and then a concise account of the status, range and habitat of the race(s) concerned (altitudes above sea-level are given in feet). Breeding data are given in a final paragraph which ends with a list of references.

A number of families, and sometimes sub-families (and the genus Cisticola) are given useful introductory sections ranging from a few lines to well over a page of pertinent detail, often including remarks on habits.

The book ends with 50 pages of Appendices: a bibliography and notes on collections used, a gazetteer, suplememtary data to the systematic list (11½ pages), details of ringing recoveries

including recurrence in winter quarters, Addenda and Corrigenda and an index.

Malawi is fortunate in having Con Benson and his wife tackle its avifauna in so painstaking and thorough a manner. The review copy, which will be deposited in the Joint Library, was kindly donated by Miss P.M. Allen.

G.C.B.

SOCIETY LECTURE NOTES

Mr Simon Stagg on 'Great White Pelicans at Lakes Nakuru & Elmenteita'.

On 9th January Mr Simon Stagg showed a film that he had taken mainly during one university summer vacation as part of a project required for the completion of his B. Sc. in Zoology. The film illustrated the general ecology of the Great White Pelican at Lake Nakuru (feeding and loafing behaviour) and certain aspects of its breeding behaviour at Lake Elmenteita. The lecture almost came to a premature end when the projector broke down but fortunately it was possible to complete the showing with another projector and Mr Stagg gave explanatory comments on the now-silent film.

Great White Pelicans only breed in areas where large numbers of fish can be caught near the water's surface by the birds' specialised feeding techniques (clearly shown in the film) and where there are islands inaccessible to mammalian predators within easy reach of the feeding grounds. In Kenya, Lake Nakuru, since the introduction of Tilapia grahami, provides the Pelicans with food while Lake Elmenteita has secure nesting sites. Mr Stagg stressed that breeding Great White Pelicans are extremely shy birds and that the sudden appearance of people near the breeding colony is liable to cause panic and mass desertion. Casual visits to the Lake are not permitted by the owners and both Mr Stagg and the Chairman pointed out that it would be most irresponsible for any Society members to try and approach the colonies 'on the sly'. Realising the risks entailed by any visits to breeding colonies Mr Stagg was extremely careful not to cause disturbance, but, by using a floating hide, was still able to approach the birds closely without causing them alarm.

At least in Kenya the proximate factor that initiated breeding at Lake Elmenteita was the presence of breeding Greater Flamingos which, unfortunately, have been unable to co-exist with the Pelicans. The Pelicans have no definite breeding season but the onset of the breeding cycle for individuals is marked by the development of swellings on the head. Mr Stagg's film showed

groups of these 'knobbies' which were in the process of forming pairs but had not yet established a nest site on the crowded breeding islets, birds on the latter with eggs and small chicks, and active young out of the nest in various stages of development ranging from rather repulsive-looking unfeathered black squabs to almost fledged juveniles. After leaving the nest young Pelicans of much the same age assemble on the water in vast creches. Until recently it was thought that creche-species adults fed members of the creche indiscrimantly but it is now known that parents locate and feed their own young. Mr Stagg thinks that Great White Pelicans can recognise the individual voices of their own young and this is probably also true for other species.

Mr Stagg can be warmly congratulated on illustrating his project work with an extremely competent film containing some really fine sequences. Members thoroughly enjoyed the meeting and are grateful to Mr Stagg for showing us his film and telling us about his work. We hope that we will be able to see more of his work in the future.

J.F.R.

ERRATUM - GREAT WHITE PELICANS The following note has been received from Mr Simon Stagg :
I wish to apologise for giving false information on the incubation and fledgling periods of Great White Pelicans, Pelecanus onocrotalus during my talk at the Museum Hall on 9th January. According to L.H. Brown and E.K. Urban (Ibis 111: 199 - 237) the incubation period is 37 days while it is 56 - 70 days between hatching and the young Pelican being able to fly. These observations were made on a colony on Lake Shala, Ethiopia. Ed.

Dr J. Darlington on 'Mound-building Termites'.

On 13th February, Dr Darlington gave a lecture on the mound building Termites. During this she gave some very interesting facts on the life and habits of these fascinating insects.

The Termites are an ancient group of insects whose nearest still living relative is the Cockroach. The insects themselves are about the only living thing that breaks down the wood and dried grass in the hot dry areas. Bacteria and fungi, which do the job in cooler and wetter climates, find it difficult to live in the dry areas. For building their mounds, Termites bring up fine soil from under the ground, rather like earthworms do in other areas, and across large areas of Tsavo National Park the soil is stone-free to a depth of about a metre, all brought up by the Termites.

The air-conditioning system of the closed nest of Macrotermes sp. prob. michaelsoni was briefly explained and it was noted that the soil beneath the mound acts as a wick for the water in the surrounding area, which helps to keep the humidity in the mound at its optimum level. This wick effect also causes salts in the water to be deposited in the soil under the mound. The large chimneys on the mounds found in drier areas are for cooling by convection currents.

In Macrotermes there are four sterile worker casts. The Major and Lesser soldiers defend the colony against aggression. Neither of these can feed themselves and have to be fed by the smaller workers. The Major worker collects food from outside the mound and also does any external building needed. The smaller workers do the internal building and look after the young, fungus beds etc. As the Termites feed largely on cellulose, and the micro-flora in their gut does not break it down very much as the food passes through, they have developed a more efficient method of doing this. After the food material has passed through the gut it is deposited on the fungus gardens. The fungus (a species of Termitomyces) is dependant on the Termites and cannot grow without them, not can the Termites of the Macrotermes group live without the fungus. The Termites weed out all the wrong types of fungus from the beds, so that only this one type survives. It forms the main food for the Termites, and all droppings are again placed on the fungus beds so that no nutrients from the original food is lost. Even dead and dying Termites are eaten by their fellows to conserve food within the colony.

Though the workers are both male and female, they are sterile. Only the King and Queen can reproduce. The winged forms (alates) are carefully looked after till the rains, when large numbers are released from the mound. The 50 - 70 000 released per year can weigh more than the rest of the inhabitants of the mound combined. As the mound is producing these for 10 - 20 years and only one pair need start a new colony to keep the numbers steady, and wastage of this method of dispersal is obvious. Once the alates have flown for a distance from the mound, they drop to the ground and from special fracture-lines at the base of the wing, shed the wings. The female then stands on tip-toe with its abdomen arised into the air, sending out a chemical message to the male. When the sexes are together they set off at a fast pace, the male with his head almost touching the female's abdomen. When they find a suitable place to nest they burrow down and form a small chamber about 10cm below the surface. Here about 30 eggs are laid and when they hatch the young are fed by their parents saliva. When they mature, they immediately take over the running of the colony. The Macrotermes, unlike other genera of Termites, does not take fungus spores with them to the new colony. They need the fungus, and it is thought that latent spores are in the soil around the

mounds and so any rotting plant matter will cause them to germinate, but as mentioned above they do not flourish without the Termites. The mature queen can lay 20 - 30 000 eggs a day, giving up to 4 million inhabitants in a mound.

The elderly minor workers are found near the base of the mound and it is thought that they may go down for water. In some parts of the world mine shafts and galleries at a depth of 60m or more have been invaded by Termites, probably looking for water. About 18% of Macrotermes mounds have two queens and 3% have three, while the record for one mound is eight !

The number of nests is an indicator of the state of the grassland as they increase in number to about five times their normal during overgrazing and degeneration of pastureland. Their main enemy is the Doryline ants; the siafu or safari ants, which kill off every living thing in the colony. The mound is very efficient as a life support system as, calculating from the growth of the mound and the queen, a mound can live for from 10 to 20 years. Also of the eggs laid in such prodigious numbers, about 50% reach maturity. This survival rate in the insect world is almost unknown.

We must thank Dr Darlington for a most interesting lecture on a subject which the average member hears very little about - a shame - as they are such fascinating creatures.

M.P.C.

SOCIETY NOTES

Thanks to all our members who have sent in copies of our Journal number 161. More are still needed, so if you do not require your copy, please send them to the Secretary. Also, thanks to all those who have signed their indemnity clauses. If you have not as yet done so, please send it to the Seceetary at P.O. Box 44486, Nairobi.

Upland Kenya Wild Flowers have finally arrived : cost to paid up members of the Society Shs. 150/-, to non-East African members Shs, 200/- and to overseas non-members Shs. 220/-, the two latter prices naturally include the cost of the annual subscription respectively. There are also four slightly damaged copies of this book, which are on sale at Shs. 105/-; ideal for the field.

Faces of Kenya. This fabulous picture book of Kenya is still available to members at Shs. 180/- plus Shs. 10/- for packing and postage if you wish it to be sent to you. Please contact the Secretary; as above.

Wild Flowers of the World by Barbara Everard and Brian D. Morley is now offered to paid up members at a special price of Shs. 75/- It is a superb book, fully illustrated in colour, and Jan Gillett of the Herbarium says that it is one of the best books of its type. Available in the Society's office at the National Museum, or place an order with the Secretary.

A Field Guide to the Coral Reef Fishes of the Indian and West Pacific Oceans by R.H. Carcasson is reviewed on page 40 - 42. Copies should be available to members at a special price of Shs. 130/-. Please place your orders with the Secretary, and when the books arrive, those who have ordered copies will be notified.

Medicinal Plants of East Africa by John Kokwaro is still available in hard back for Shs. 85/-. Copies are available in the office.

Lake Nakuru by Charles Vaucher continues to attract interest. Only Shs. 50/- to members, so call in at the office and buy your copy now while stocks last.

Informal Notes Six very attractive designs by Jean Lock, air mail weight are sold in packs of 12, two of each design with envelopes. Only Shs. 10/- per set - ideal for writing short letters to friends. Available in the office.

Car Stickers are in good supply ! Do you have one on your car yet ? If not, spend Shs. 2/- to help publicize the Society. On sale at most Society lectures and in the office.

Library Help in needed in the Library to carry out an inventory of books and journals. If you could give a little of your time, please contact the Secretary or the Librarian, Mrs Nyakina.

The Library is now open on Saturday mornings from 9.30 a.m. to 12 noon. The Librarian would be happy to see you.

Society Lectures It has been noticed recently that some members are arriving very late for lectures. Some time ago we changed the time of the lectures from 5.15 to 5.30 p.m. in the hope of stopping late arrivals, but to no avail. Please try to come on time as it is very disturbing to the lecturer and the other members.

Camps These functions are very popular, but only a small proportion of our members are able to attend. They would, however, like to hear about the trip, so if you go on a camp, why not write it up for the Bulletin ? We look forward to hearing from you !

While on the subject of lectures and trips, suggestions are always most welcome by our functions organizer, Lise Campbell for a good area to visit for the day or week-end, or for a speaker to give a lecture. Could you organize a trip ? Please send in your ideas to Mrs Campbell at P.O. Box 14469, or to the Secretary at P.O. Box 44486, Nairobi.

Bulletin material. This issue of the Bulletin has used up all the articles received. Please write in with interesting observations, notes on areas to visit, or any small comment on general natural history interest. The Editor would be pleased to hear from you.

ANNUAL GENERAL MEETING

The 68th Annual General Meeting of the Society will be held in the lecture hall, the National Museum on Monday 13th March 1978 at 5.30 p.m. Members are urged to attend this important function.

WANTED

Locality lists for plants, birds, mammals, insects. The lists should be accompanied by the map reference so that the data can be used on distribution maps. Members who attend Society camps and day trips are particularly requested to send in this information to :
Mike Clifton, P.O. Box 40658, Nairobi. Thank you.

NEW MEMBERS

The following new members have been elected :

Local Full Members
Mrs Veraa Brablik, P.O. Box 42727, NAIROBI
Mrs Kristina Bwire, P.O. Box 30345, NAIROBI
Mrs N. Collinson, P.O. Box 25171, NAIROBI
Mr and Mrs M.A.R. Davis, P.O. Box 40078, NAIROBI
Mr and Mrs C. Gilpin, P.O. Box 30577, NAIROBI
Mary Beth Henke, Dept. of Lab. Techn., Medical Training Center, P.O. Box 30195, NAIROBI
Mr P. Herzog, P.O. Box 25114, NAIROBI
Mrs A. Highton, P.O. Box 50526, NAIROBI
Mr Geir Indrebo, M.O.W., P.O. Box 30521, NAIROBI
Mr R.L.E. Kerr, P.O. Box 40612, NAIROBI
Mr Per L. Kristensen, M.O.W., P.O. Box 30260, NAIROBI
Mrs Inga Linder, DCO-SIDA, P.O. Box 30600, NAIROBI

Ms Elspeth M. Maule, P.O. Box 750, THIKA
Mr Joseph E. Mbae, Tana Hall, P.O. Box 29110, NAIROBI
Mr T.B. Muckle, P.O. Box 470, NAKURU
Dr A.W.R. McCrae, ICIPE, P.O. Box 80804, MOMBASA
Mr M.J.R. Nout, Dept. of Food Science, P.O. Box 29053, KABETE
Mr and Mrs Yuval Oded, P.O. Box 30354, NAIROBI
Miss Josephine O'Hare, Cavina School, P.O. Box 43090, NAIROBI
Mrs Marianne Ouma, P.O. Box 30266, NAIROBI
Mr G. Pearson-Wright, P.O. Box 47440, NAIROBI
Mrs Gloria Pepela, P.O. Box 21672, NAIROBI
Mr Nile Petersen, c/o District Education Office, P.O. Box 31, WAJIR, North Eastern Province, Kenya
Mrs Jane Rawlinson, P.O. Box 41968, NAIROBI
Mr K.S. Roberts, P.O. Box 30001, NAIROBI
Mrs I.G. Robson, P.O. Box 340, MALINDI, Kenya
Ms Diane Russell, Faculty of Medical Technology, P.O. Box 30195, NAIROBI
Mr N. Sanderson, c/o Njoro Club, Private Bag, NJORO, Kenya
Ms Diane Marie Schomers, P.O. Box 45757, NAIROBI
Mrs Heidi Schulthess, P.O. Box 29053, KABTET, Nairobi
Mrs G. Selley, P.O. Box 21501, NAIROBI
Dr Jennifer Sharpley, P.O. Box 47098, NAIROBI
Mr L.N. Sheppard, P.O. Box 30201, NAIROBI
Mr William F. Snow, P.O. Box 80804, MOMBASA
Mrs Iduna Spielman, P.O. Box 37, KILIFI, Kenya
Mr Bryan Rhys Thomas, P.O. Box 40875, NAIROBI
Mr M.H.S. Thomas, P.O. Box 30465, NAIROBI
Mr John E. Thomsen, Royal Danish Embassy, P.O. Box 40412, NAIROBI
Mrs D.E. Truran, P.O. Box 30020, NAIROBI
Mr W. Tunstall, P.O. Box 44801, NAIROBI
Mrs S.D. Weaver, Dept. of Geology, P.O. Box 30197, NAIROBI
Mr C. Wells, Greenacres School, P.O. Box 46919, NAIROBI
Mrs V.C. West, P.O. Box 24804, KAREN, Nairobi
Mr and Mrs D. Widdowson, Dept. of Botany, P.O. Box 30197, NAIROBI

Local Junior Members
Mrs Jennifer Kahurananga, P.O. Box 14634, NAIROBI
Daniel Mburu, P.O. Box 30424, NAIROBI
David Karl Mutiso, P.O. Box 44934, NAIROBI
Miss Wanjiku Mwangi, P.O. Box 340, LIMURU, Kenya

Overseas Full Members
Catherine Caufield, 22 Earl's Terrace, London W 8, England
Dr and Mrs J.W. Gerrard, 809 Colony St., Saskatoon, Saskatcheuan, S7N 052, Canada
Mr W. Tuleche, Antioch College, Yellow Springs, Ohio 45387, U.S.A.

SOCIETY FUNCTIONS

Monday 13th March 1978 at the Museum Hall, Nairobi, at 5.30 p.m. ANNUAL GENERAL MEETING followed by a film 'The Maasai'.

March 24th/27th 1978 Camping and exploring at Ol Lolokwe, north of Isiolo. Leaders : Mr and Mrs L.A.S. Grumbley. Distance from Nairobi about 340km via Nanyuki and Isiolo. Members should be completely self-contained as far as food, water and equipment is concerned. Particularly water is important, as the area is very hot and there is no water. No petrol beyond Isiolo. There is not much game left in the area, but birds are numerous and the flora on the mountain is interesting. Please be prepared for hill walking with picnic lunch/drink. The camp will be limited to 20 vehicles. Members wishing to take part in this field meeting should please fill in the enclosed slip and return it with a stamped addressed envelope to Mrs A.L. Campbell, P.O. Box 14469, Nairobi by 10th March. Further details and route instructions will be sent after that date.

Sunday 9th April 1978: 'Dudu' Crawl' in the Nairobi area. Leader Mr. M.P. Clifton of the Museum. Please meet at the National Museum, Nairobi at 9.30 sharp.

Monday 10th April 1978 at the Museum Hall, Nairobi at 5.30 p.m. Dr K. Hillman of the Elephant Survey and Conservation Programme will give an illustrated lecture on 'Elephants in Kenya and the work of the I.U.C.N.'

Monday 8th May 1978 at the Museum Hall, Nairobi at 5.30 p.m. Mr John Reynolds will show slides illustrating various features of African bird ecology and behaviour.

Sunday 14th May 1978 A trip down the Magadi Road to re-find a new species of Euphorbia. Please meet at the National Museum at 8.30 a.m. and bring a picnic lunch and drink.

Saturday 27th May 1978. A visit to Mr and Mrs Cameron's fern garden at Limuru. Please meet Mr Gilbert of the Herbarium at the National Museum at 2 p.m. sharp

June (17th) 18th 1978 Week-end/day excursion to Kajiado. Leaders Dr J. Darlington and Dr and Mrs v. Gronde. Details later.

June 1st/2nd 1978 (and any adjoining date(s) as wanted) Visit to Kimana Lodge (between Amboseli and Tsavo), approach road via pipeline road from Sultan Hamud. The Society has been offered the following special rates : Adults Shs 120/-, children under 12 Shs. 65/-, under three free, full board. If you would like to take advantage of this offer to see this new Lodge, please fill in the enclosed slip and return it with full payment to Mrs A.L. Campbell, P.O. Box 14469, Nairobi as soon as possible - with a stamped addressed envelope.

Wednesday morning bird walks continue - meet at Museum 8.45 a.m.

THE EAST AFRICA NATURAL HISTORY SOCIETY

Chairman: J. S. Karmali
Vice Chairman: Dr J. Kokwaro
Editor, Jl E. Africa nat. Hist. Soc. Nat. Mus.: Mrs J. Hayes
Secretary/Treasurer: Miss D. Angwin
Librarian: Mrs J. Hayes
Ass. Secretary/Treasurer: Mrs D. M. Collins
Executive Committee (in addition to the above): Miss P. M. Allen, G. C. Backhurst (*Ringing Organizer*), Mrs A. L. Campbell, M. P. Clifton (*Editor EANHS Bulletin*), Dr J. Gerhart, Dr J. M. Mutinga, Dr D. J. Pearson, J. F. Reynolds.
Co-opted Members: Mrs H. A. Britton (*Nest Record Scheme Organizer*), Dr A. W. Diamond, Dr A. Hill, J. Kahurananga, J. Maikweki, S. Muchiru, Mrs F. Ng'weno, D. A. Turner.
Journal Editorial Sub Committee: Mrs J. Hayes, Miss D. Angwin, Mrs V. Balcomb, M. P. Clifton, Dr A. Hill, Dr D. J. Pearson, J. F. Reynolds.
Ornithological Sub Committee: G. C. Backhurst, P. L. Britton, Mrs H. A. Britton, G. R. Cunningham-van Someren, Dr A. W. Diamond, A. D. Forbes-Watson, B. S. Meadows, Dr D. J. Pearson, J. F. Reynolds, D. K. Richards, D. A. Turner.
Joint Library Sub Committee (Society representatives): Mrs J. Hayes, Dr J. O. Kokwaro.

MEMBERSHIP

This offers you free entry to the National Museum, Nairobi; free lectures, films, slide shows or discussions every month in Nairobi; field trips and camps led by experienced guides; free use of the Joint Society-National Museum Library (postal borrowing is also possible); reciprocal arrangements with the Uganda Society's Library in the Uganda Museum, Kampala; family participation: wives and children of members may attend most Society functions; one copy of the *EANHS Bulletin* every two months; a copy of each *Journal* published during your period of membership; the Society controls the ringing of birds in East Africa and welcomes new ringers and runs an active Nest Record Scheme; activities such as plant mapping and game counting are undertaken on a group basis. Membership rates are given at the foot of this page.

JOURNAL

The Society publishes *The Journal of the East Africa Natural History Society and National Museum.* Each issue consists usually of one paper, however, sometimes two or more short papers may be combined to form one number. The aim of this method of presentation is to ensure prompt publication of scientific information; a title page is issued at the end of each year so that the year's papers may be bound together. Contributions, which should be typed in double spacing on one side of the paper, with wide margins, should be sent to the Secretary, Box 44486, Nairobi, Kenya. Authors receive twenty-five reprints of their article free, provided that these are ordered at the time the proofs are returned.

E.A.N.H.S. BULLETIN

This is a duplicated magazine issued six times a year, which exists for the rapid publication of short notes, articles, letters and reviews. Contributions, which may be written in clear handwriting or typed, should be sent to The Editor (*EANHS Bulletin*), Box 44486, Nairobi, Kenya. Line drawings will be considered if they add to the value of the article. Photographs cannot be published.

SCOPUS

The Ornithological Sub Committee publishes this quarterly bird magazine. Cost: EANHS members KShs. 50/- p.a., non-EANHS members KShs. 75/- p.a. All correspondence to D. A. Turner, Box 48019, Nairobi, Kenya.

MEMBERSHIP SUBSCRIPTION RATES

Life	One payment: Kshs. 750/-
Institutional (schools, libraries) .	annual payment: Kshs. 50/-
Full	annual payment: Kshs. 50/-
Junior (full-time student, no *Journal* supplied) . . .	annual payment: Kshs. 10/-

Subscriptions are due 1st January. From 1st July you may join for Kshs. 35/- and receive publications from that date. Application forms for membership are obtainable from the Secretary, Box 44486, Nairobi.

QH
7
E135
SI
NH

EANHS

BULLETIN

SMITHSONIAN
AUG 15 1978
LIBRARIES

A publication of the East Africa Natural History Society, Box 44486, Nairobi, Kenya. Price 4 shillings

NOTES FOR CONTRIBUTORS

Members of the Society (and non-members) are asked to follow these simple instructions when writing articles or letters for submission to the *Bulletin*. The *Bulletin* is presented six times a year in a duplicated format: the paper size is 20.5×23 cm (10×8 inches), line drawings can be reproduced but the area should not be more than 17.5×23 cm. Lettering on figures should preferably be in 'Letraset', neatly done in Indian ink or left blank: if the last method is followed, the lettering should be indicated on an overlaying sheet and should *not* be done on the figure. Figures should be prepared on good quality white writing paper and not on Bristol Board or other thick material. Whenever plants or animals are mentioned the scientific name should also be given but not in parenthesis. Trinomials should not be used unless there is good reason to do so. Author's names of species are not required.

Contributions may be typed (preferably) or written clearly and should be sent to: M. P. Clifton, Box 44486, Nairobi, Kenya. Receipt of contributions will be acknowledged.

CONTENTS

Breeding Behaviour of the Bronzy Sunbird 52
Flowers to Attract Sunbirds 55
Wahlberg's Eagle 56
Pel's Fishing Owl 56
Silvery-cheeked Hornbills 56
European Bee-eaters Wintering in Nairobi 58
A Further Note on the Rift Valley Swamps 60
Bryophyllum and Kalanchoe 63
Society Lecture Notes: Elephants and the I.U.C.N. 64
Society Camp and Day Trip
Ol Lolokwe Camp 65
'Dudu Crawl' 66
Scopus 66
Requests 67
The Breeding Seasons of East African Birds 68
Library 69
Society Notes 69
New Members 71
Society Functions 71

BREEDING BEHAVIOUR OF THE BRONZY SUNBIRD NECTARINIA KILIMENSIS

One of the problems my husband and I wished most to investigate during our five years in the highlands of Zaire (formerly the Belgian Congo) was that of breeding seasons near the Equator. Are they restricted to definite periods of the year, as they are in temperate climates and in the sub-tropics ? If they are not, what are the factors that effect them ?

Near our home at Tshibati, southwest of Lake Kivu at an altitude of nearly 2,000 metres and only 2 1/4 degrees South of the Equator, we had an opportunity to make rather detailed studies of the behaviour of the Bronzy Sunbird, Nectarinia kilimensis, which are very common there. We were soon able to establish that this Sunbird maintained a fixed territory and that the pair bond persists indefinitely. By far the greater part of our observations of this species were concentrated on the activities of one pair of birds. It seemed to me from the first that I could recognize them on the basis of personality, but feminine intuition was supplemented by scientific accuracy when colour rings were affixed to the legs of the male.

The nests of N. kilimensis are relatively easy to locate: but the birds, though not shy, are extremely sensitive to interference with their nests. If we wished to follow a nest through the normal cycle, it was important to leave it untouched. The actions of the female betrayed the existence of a nest. If she no longer accompanied the male on his flights in and out of the flowering Erythrina, it was a signal that she was engaged in more serious business. The nesting territory was not large - perhaps 45 metres wide - and a little concentrated watching would result in discovering her carrying shreds of woody fibre to the beginnings of a nest, most often hung under a sheltering leaf of an Erythrina. A beakful of the white pappus of some composite meant that the outside of the little pouch of fibres and grass-stem was complete, and that the lining stage had been achieved. If she fluttered along beneath the branches of a tree, gleaning industriously for tiny spiders and minute insects, it was proof that she was gathering food for a single nestling, the normal brood.

Her own feeding, like that of the male, was mainly at the blossoms of Erythrina or those of canna and trumpet-creeper that we planted to entice the Sunbirds closer to our house. Tephrosia and Pentas were also visited; but the most preferred flowers were those of Erythrina, a very common, quick-growing tree, of which some were always in flower no matter what the time of year.

One sure indication that the little swinging pouch held a nestling was the arrival of the male at the doorway. The female alone constructed the nest, and I never saw a male go near it except to bring food to a young bird. His participation was more or less desultory and erratic; the burden of feeding was left mainly to the female. When the young bird emerged from the nest, the female continued to feed it, although the youngster soon began to probe the flowers of the Erythrina. The male showed little interest in his progeny once it had braved the world. 'Fend for yourself', he seemed to say as the ridiculous stumpy-tailed youngster persued him with fluttering wings, calling piteously. Sometimes the male would make a sudden, vicious dash at the baby, which reacted by toppling over and hanging upside down on the branch. The male was very arrogant - as handsome gentlemen often are - and he was vigorous in defending his territory against a wandering male of his own species, the Black-headed Weavers, Ploceus cucullatus that alighted by chance in the top of the nest-tree, or an occasional Paradise Flycatcher, Terpsiphone viridis that came too close. The only aggression by the female was directed against a Least Honeyguide, Indicator exilis, that ventured too near a nest containing a young bird.

The Bronzy Sunbird is surely not parasitized by the Honeyguide, but it is a victim of Klaas's Cuckoo, Chrysococcyx klaas. At Tshibati we never found a young Cuckoo in the nest of this Sunbird. I feel certain, however, that our female once outwitted the Cuckoo, although the evidence is purely circumstantial. I had been watching the building of her nest and she had reached the lining stage, which is a leisurely one and is carried out in a rather spasmodic fashion, quite in contrast to the energetic way in which the pouch is built. She had not begun to sit in the nest, and I felt sure that she had not as yet laid. To my surprise, then, one morning I saw her fly to the nest, cling to the entrance, and remove in her beak something that looked like an egg. She flew off a short distance and dropped her burden. It was, indeed, an egg - broken to be sure - but from its colour and estimated size it could have been the egg of a Klaas's Cuckoo. The male Cuckoo had been heard calling frequently in the area, even on that same morning. The Sunbird, not having yet laid, recognized the egg as that of an interloper.

The female kilimensis is an energetic and devoted parent. The building of the nest and the rearing of the single young required about 40 to 50 days. The period of incubation is estimated to be about 15 days, although without actually examining the nest it was difficult to decide just when the egg was laid; for even when the female was surely incubating, she spent a great deal of time outside the nest. The period

from hatching to departure was easier to estimate and averaged 14 ot 15 days. It was amusing to learn that the mother 'house-broke' her baby. Often we watched her cling to the entrance and prod the nestling with her beak; whereupon it presented its bottom at the nest opening, defecated, and the mother flew away, carrying the excrement.

Even after the young bird had left the nest she would shepherd it back each day before dusk and would spend the night with it in the nest. This continued for five or six days. We watched the procedure for more than one brood. The mother continued to feed the young one even after she had a new nest well under way. In fact, she was one of the busiest creatures I ever watched. She apparently achieved four or five successful nestings per year and occasionally suffered the loss of a nest for some unknown reason.

During a period of five years we observed breeding activity in every month of the year. It was not confined to a wet or dry season, nor was there a regular cycle that we could establish with certainty, though it must be admitted that we were absent from Tshibati at times for periods of a month or more. Sometimes there were clues to the activity during our absence - a new youngster following the parents, or a nest that had not been there before. Quite aside from the pair we called 'ours', my husband and I recorded occupied nests of N. kilimensis in the Lake Kivu region for every month of the year.

That there was a resting period is indisputable. No nest-building was recorded for our pair in the months of March and April, and that seems to have been the period of their repose. Other pairs in the vicinity did not, however, conform to a similar pattern, and occupied nests were observed during these months. The moult of this Sunbird was difficult to detect, for the male does not assume an off-season dress, as do the Copper Sunbird, Nectarinia cuprea and the Variable Sunbird, N. venusta in the same area. The moult of the latter two species occurred regularly during the dry season, which lasted from late June through August. Our male kilimensis was in full, fresh, gleaming plumage in June 1956 and his female was nesting; but two males collected at that time were in moult: the remiges partially renewed, the rectrices very worn, and the gonads not enlarged.

What controls this unusual cycle is a mystery. Temperature and hours of daylight vary little. Insect food is always abundant and the preferred food plant, Erythrina abyssinica, is constantly available. One can only assume that the breeding cycle depends on some internal rhythm and, insofar as we could observe, is not regulated by environmental factors, at

least in the region of Lake Kivu.

In Uganda, where the change of season is somewhat more marked, this species of Nectarinia is reported to have two principal periods of nesting, April to July and November - December. In Marungu on the western side of Lake Tanganyika, near 7°S latitude, there probably is only a single breeding season, during the rains. The more southerly race, arturi, in Malawi and Rhodesia is said to breed from September to July.

I am extremely indebted to my husband for recording so diligently each day the observations we were able to make at Tshibati on this and other species. We shared the pleasure of watching, except that I generally avoided excursions to the nests at 10 or 11 a.m., rain or shine. He was the careful scribe who preserved the records on which this account has been based.

Ruth T. Chapin,
Dept. of Ornithology,
American Museum of Natural History, Central Park West at 79th Street, NEW YORK, New York 10024, U.S.A.

FLOWERS TO ATTRACT SUNBIRDS

We have several times been asked what flowers to plant to attract Sunbirds to windows in Nairobi. Tall plants such as Erythrina, Cestrum or Leonotis, however attractive, are clearly to be avoided as they would shut out the view.

The following have been found very satisfactory growing together in a garden not far from Adams Arcade and all are easy to propagate.

1)	Cuphea micropetela H.B. & K.	Lythraceae	Cigar Plant
2)	Aloe graminicola Reynolds	Liliaceae	Grass Aloe
3)	Canna indica L.	Cannaceae	Canna Lily

The Cuphea has the great advantage that it flowers virtually throughout the year. The Aloe is a rosette-forming plant which never grows too tall. The small flowered form of the Canna which is apt to run wild seems to be preferred by the birds to the large flowered, more showy garden varieties.

Mr Cunninghan van Someren with his immense knowledge of Sunbirds, recommends in addition the following: Thunbergia mysorensis, a climber to grow at the edge of the window, the

red and purple flowered species of Salvia, the Kniphofia (Red-hot Poker) and the small-flowered species of Fuchcia (not the large flowered showy garden forms.)

J.B. Gillett,
Herbarium,
P.O. Box 45166, NAIROBI

WAHLBERG'S EAGLE

On two consecutive nights, 13th and 14th February 1978, at approximately 18.30 hrs. in Meru National Park, Kenya, a pair of Wahlberg's Eagles, Aquila wahlbergi were seen raiding the active nests of Sudan Dioch, Quelea quelea.

The Eagles flew from a dead tree about 20 m away, landing hard with claws outstretched, onto the side of a nest cluster. They then hung upside down, vigorously flapping their wings until their own weight tore large pieces of the nest away. These were followed to the ground and the live contents devoured.

- - * - -

PEL'S FISHING OWL

A clear and unmistakable sighting of Pel's Fishing Owl, Scotopelia peli was obtained on the 24th January 1978 on the Rojewero River in Meru National Park.

Returning home to camp at the Rojewero Camp Site at about 18.30 hrs. this magnificent bird was seen sitting on a low branch just upstream from the low drift over the river, which forms a long deep pool. The Owl watched us unconcerned for a few moments before flying up into the branches of a large Fig tree, where it disappeared in the foliage.

Peter Davey,
P.O. Box 15007, NAIROBI.

SILVERY-CHEEKED HORNBILLS

Returning to Nairobi on Easter Monday, we saw a large party of Silvery-cheeked Hornbills, Bycanistes brevis on both sides of the main Nanyuki/Nairobi road, about six kilometres North of Nyeri. We estimated their numbers at between 70 and 100.

Most were sitting on, or flying between, the Gravillea and Gum trees, making a lot of noise, but what caught our attention was the apparently destructive behaviour of at least two of the birds. They were seen to pluck leaves and twigs from the trees and then throw them to the ground.

One bird then turned its attention to a colony of Black-headed Weavers, Ploceus cucullatus in a nearby Gum tree. From a vantage point on a small branch, it began to interfere with the nests, even putting its bill right inside them, as if searching for something. Another bird then displaced this one at the colony and did the same. Once or twice the Hornbills attacked the nests from the air, hovering noisily as best they could. Eventually a nest was completely severed and fell down.

This continued for about 15 minutes, and when the Hornbills left the colony alone, the Weavers returned, shivering, very excited and apparently inspecting their nests for damage. They had earlier attempted to mob the attacking Hornbills.

Now the time was about 17.30 hrs., and with the light fading, the Hornbill party were beginning to make a move from the area, perhaps to their roost for the night.

We have read that this Hornbill is strictly frugivorous, and have not heard of it taking young birds, so we wonder if this behaviour was simply play.

Throughout the twenty minutes of observation, the birds were noisy and restless, and were not seen feeding.

W.J. Baker & P.B. Allen,
P.O. Box 41190, NAIROBI

Mr Cunningham van Someren, Ornithologist at the National Museum comments of the above article.

' It is well known and documented in the literature that Hornbills take the eggs and young of Weavers. We watched the White-thighed Hornbill, Bycanistes cylindricus albotibialis taking eggs and young from a mixed colony of Black and Black-headed Weavers in Bwamba, Uganda. (Birds of Bwamba. Uganda Journal, Vol 13, 1949 p. 37)

These large Hornbills, like the smaller species, are known to take fruit but they also feed on insects such as grasshoppers and mantids, and will also eat skinks and chameleons, large caterpillars and spiders.

Plucking leaves and twigs is also recorded. This may be

part of a courtship ritual or a 'social reaction' when birds gather in flocks.

It would be of interest to know the whereabouts of the roost, for how long the roost has been occupied and also the time of going to roost. At Kakamega several hundred Silvery-cheeked Hornbills used to gather in a Gum plantation and roost, making such a clamour and arriving from all quarters at around 18.30 hrs - by 19.00 all was quiet.'

EUROPEAN BEE-EATERS WINTERING IN NAIROBI

It appears as though European Bee-eaters, Merops apiaster, have developed a rather firm tradition of wintering in or near the Kirichwa Dogo River Valley, which stretches for about two kilometres between Riverside Drive and Mandera Road in Nairobi. The valley is adjacent to my garden and I used to walk through it about once a week throughout the last five seasons (October to April). In my first two years in Kenya I was much too fascinated by the African birds and neglected the palaearctic migrants; I just noticed the Bee-eaters being present throughout the respective seasons. But from March 1976 I started watching out for them regularly and taking some notes about their roosting habits. For the last two and a half seasons I can give the following summary :

The first 4 and 15 birds were noticed crossing our garden on 11.9.76 and on 10.9.77 respectively. (Prior to these dates there is only one record in the Newsletter of the National Museum's Ornithology Department, namely 8.9.76 at Karen.) Maybe these birds are still heading further South, but the first flocks to roost in the valley were noted : 70 on 25.9.76 and 60 on 14.10.77. Since the Bee-eaters were gathering in leafy trees I had no chance to count the immatures and adults, but from my estimate there were less than 20% adult.

About one and a half hours before sunset the birds, constantly calling, gathered, up to 60 (maximum about 100 on 7.11.76 and 28.10.77) from flocks of 5 - 10 from all directions. They preferred a single Silky Oak in the centre of the valley, from where, at sunset, they took off for their roosting trees, one or two tall Gums. They used to choose the side of the tree top which was shielded from the wind, and there they snuggled in groups of 4 - 6. Calling ceased five to ten minutes after sunset.

There are three groups of Gum trees in the valley, one towards the East, one in the centre and one towards the West, about 1km apart from each other. The Bee-eaters chose one of

these groups for several nights and then changed and hardly used one and the same for more than two weeks. The reason for changing remains guesswork, but it could be a means of protection against possible predators. On 19.11.77, when I had watched them gathering from 4 to about 80 birds, I was wondering why they were so nervous, taking off again three times after having settled, when I saw a Hobby, Falco subbuteo or cuvieri passing. At a similar observation it was a small Hawk, Accipiter sp., which was passing at dusk. Maybe it was for the same reason that, often, having gathered in the lone tree, they took off at sunset for somewhere South of the valley, or, very rarely, apparently having gathered somewhere else, they entered the valley from the South at sunset, heading straight for their roosting tree, as did a flock of 60 on 14.11.77.

In the last season I noted the change between roosting and leaving as follows: October 14th, roosting in eastern trees; October 28th leaving; November 14th, 17th, 18th, 19th, 21st roosting in central trees; December 19th leaving. Thirty five birds entered the valley at 18.45 hrs. on 7th January 1978 heading straight for the central trees. From January 9th through February I regularly found them gathering in the lone tree but no longer roosting in the valley. On 9th January 1978 about 50 of those gathered, only reluctantly left the valley at 18.20 hrs, while six remained hunting round the central trees for ten minutes before they finally followed the others.

In March Bee-eaters were frequently observed in the valley also during daytime, but some of them might already have been on passage to the North. On 29.3.76 I watched a flock of 20, and on 30.3.77 one of 100 - 120 cruising high in the air in the forenoon and the first flock leaving northwards, but the second one unexpectedly leaving southwards. The last Bee-eaters were seen in the valley in 1976 on 8th April, when five were resting on a fence. The last this year were on 27th March when 2 - 15 were resting in low trees. (On 28th, when some could still be heard, I left for a safari, and on 2nd April there were none). In 1977 flocks of 20 - 30 were seen passing northwards until 5th April. (The latest observation reported in the Dept. of Ornithology Newsletter are 4.4.77 at Lake Jipe and on 27.3.78 at Langata).

I am wondering whether they will return in the next season, although a new road is being cut into the Kirichwa Dogo River Valley just below their favourite lone tree.

Hermann Pelchen,
P.O. Box 47097, NAIROBI

A FURTHER NOTE ON THE RIFT VALLEY SWAMPS

These interesting swamps were described in the Society's Bulletin of September/October 1977. The last note on them was up to August 1977. Many birders and others have visited them despite the rough and often very wet track.

The water level gradually receeded towards the end of 1977 and by March 1978 most of the swamp was dry with about a hectare of open shallow water at the South end. The whole character of the swamp had changed by March from a sheet of open water, chest-deep at the deepest, with sparse Cyperus to a dense marsh consisting of many species of Cyperaceae which invaded as the swamp dried out. Walking through this thick growth was far from easy, for some species had reached shoulder height.

However, the change in the flora was interesting. Three species of the semi-aquatic fern, Marsilea had appeared, forming many roughly circular patches, often three or four metres across. In March these ferns carried their 'dry-season' type of frond which are quite different to the wet-season floating fronds. These patches of ferns were hidden by the growth of Cyperus and not readily seen unless the visitor walked into the drying swamp. In the September/October 1977 Bulletin the Marsilea mentioned were seedlings and as they had not produced sporocarps the plants were not identifiable. March plants and those found on 23rd April had produced sporocarps so can be identified as Marsilea maerocarpa, M. botryocarpa and M. probably farinosa. On 24th April the heavy rains had partly refilled the swamp to a depth of 30cm so that these ferns had developed their floating fronds. Of particular note was the fact that in March the Marsilea foliage was being eaten by swarms of caterpillars of the economically important pest species of moth, the Noctuid Prodinia litura. Ferns are seldom eaten by caterpillars. Elatine triandra (Elatinaceae) the tiny aquatic plant mentioned in the 1977 Bulletin was left high and dry in March, but by 23rd April the swamp was full of seedlings but larger, mature plants which had survived the dry period had changed their form from a prostrate growth to upright forms !

The yellow three petalled aquatic Ottelia ulvifolia (Hydrocharitaceae) first appeared in August 1977 but died down completely in March 1978. However, by April it was very conspicuous. This is an attractive aquarium plant with large, almost transparent pale green or pinkish foliage. Also in April the attractive aquatics Aponogeton abyssinicus with purple-mauve flowers and A. junceus with white flowers (Aponogetonaceae) were widely distributed, while the feathery submerged Najas gramminea (Najadaceae) and Nitella knightiae

(Characeae) were prolific. Reedmace, Typha sp. (Typhaceae) seedlings had appeared over most of the southern section of the swamp.

There are now many small areas of open water, free of Cyperus, but these can only be found by wading in the swamp. Here the water is crystal clear enabling one to see the submerged aquatics and the fauna such as massed shoals of tadpoles of the Clawed Frog, Xenopus sp. In the open pools we found Yellow-billed Egrets, Egretta intermedia which were probably taking the tadpoles.

For the first time since the formation of the swamp we found about six pairs of the Yellow-crowned Bishop, Euplectes afer. The males, in full golden-yellow and black dress, were displaying - yellow fluffy balls flitting about their territories in the Cyperus. One nest under construction was located after a search. Another new bird for the swamp was the White-winged Widow-Bird, Euplectes albonotatus.

We spotted four White-faced Tree Ducks, Dendrocygna viduata at the South end together with two pairs of Red-bill Duck, Anas erythrorhynchos and a pair of Hottentot Teal, Anas hottentota. J.F. Reynolds found a pair of these Teals with a nest, clutch 8, on 20th January. Perched high up in one of the tall acacia trees we spotted a pair of Knob-billed Geese, Sakidiornis melanotis. What other Ducks were hidden in the Cyperus we did not know, until, by courtesy of an African Marsh Harrier, Circus ranivorus, which drifted leisurely over and raised the Ducks from their hideouts, three pairs of African Pochard, Anas erythrophthalma, another seven Knob-bills and 12 more Red-bill Ducks. No migrant Ducks were present though Garganey Teal, Anasquerquedula were there on 12th March. We heard Coots, Fulica cristata, also Moorhen, Gallinula chloropus and saw one of the latter. Five Little Grebes, Tachybaptus ruficollis were present also one Long-tailed Cormorant, Phalococorax africanus and one Green-backed Heron, Ardeola striatus.

We were somewhat suprised to find four Reeves, Philomachus pugnax in bright breeding plumage, still lingering on with other palaearctic migrants, one Marsh Sandpiper Tringa stagnatalis and one Greenshank, Tringa nebularia.

Quail Finches, Ortygospiza atricollis were numerous in the shorter grass around the swamp, while we were able to approach to close range a tight flock of 50 Crowned Cranes, Balearica regulorum, which were feeding in a small patch of drying grass to the North end of the swamp. When disturbed they flew off to an open area of water, however, later in the

afternoon they had returned to the same patch of grass where they were taking the seeds. A flock of Redwing Starlings, Onychognathus morio were feeding on the orange fruits of Tapyphillum schumannii (Rubiaceae) while a pair of Hildebrandt's Starlings, Spreo hildebrandti had taken over the nest hole of the Grey Woodpecker, Mesopicos goertea in the old dead acacia at the South end and were feeding young. A pair of Cut throats Amadina fasciata were making use of an old nest of the Grey-capped Social Weaver, Pseudonigrita arnaudi.

On our way to the swamps from the Ngong Hills we counted no less than 17 Lesser Grey Shrikes, Lanius minor and 11 Red-backed Shrikes, Lanius collurio while a single Red-tailed Shrike, Lanius isabellinus, which was probably a hybrid, was found on our way to the dry swamp at Balbal Olera. We also visited the Rifle Range Swamp, but found it dry !

Last year the Andersen's dam at Oloshobor, on the West side below the Ngong Hills, burst, but the damage has been repaired and there is now a fine sheet of water estimated around 20 hectares, and beyond this there is another smaller dam. On the main dam we spotted a pair of Great Crested Grebe, Podiceps cristatus and a pair of African Spoonbills, Platylea alba. These dams, as they mature, will form interesting wetlands.

The Rift Valley swamp is well worth a visit particularly as many species in the area will be breeding. With care, avoiding boulders and Aardvaak holes, one can drive round the swamp.

Thanks indeed to Mr and Mrs C.E. Norris who took the writer round the wetlands.

G.R. Cunninghan van Someren,
P.O. Box 40658, NAIROBI

Note A note on some wetlands and the bird census will be found in the Newsletter of the Section of Ornithology of the National Museum. Anybody interested in receiving this free monthly Newsletter should contact the Bird Room and put their names on the mailing list. The Editor is always glad to receive contributions for this Newsletter.

BRYOPHYLLUM AND KALANCHOE

Several members of the Natural History Society and the Horticultural Society have, during the past few years, asked Botanists working at the Herbarium whether the succulent plants known to gardeners as Bryophyllum are to be so called, or treated as species of Kalanchoe. We have never been able to answer this question as, although my own opinion has been in favour of recognizing two genera, some leading specialists have held the opposite view. Dr G.R. Wickens of Kew, who is studying the Crassulaceae for 'The Flora of Tropical East Africa', tells me that he is convinced by the work of Mme M. Lanzac-Marchal (1974) (of which he sent me a copy) that two genera, Kalanchoe and Bryophyllum (provisionally including Kitchingia) should be recognised, differing as follows :

	Bryophyllum	Kalanchoe
1) Flowers usually	hanging	usually erect
2) Calyx	bell shaped	cylindrical or spreading
3) Sepals	united	free
4) Stamens inserted	at base of corolla	above middle of corolla
5) Scales at base of carpels	broad	narrow
6) Carpels	shorter than styles	longer than styles
7) Buds on leaves	often present	absent
8) Chromosome No.	17	18

Kalanchoe s. str. is widespread in Africa and Tropical Arabia with a few species in Southern Madagascar. Bryophyllum is almost confined to Madagascar.

Four species of Bryophyllum occur commonly around Nairobi as escapes from cultivation, namely :
B. fedtschenkoi (Ham. & Perr.) Lanz.-March.
B. pinnatum (Lam.) Oken
B. proliferum Bowie
B. tubiflorum Harv.

J.B. Gillett,
P.O. Box 45166, NAIROBI

Editorial Note

Members will notice that most of the articles in this Bulletin are on birds. If you would like to read more articles on plants, mammals, insects or amphibians, please send in your observations to M.P. Clifton, P.O. Box 44486, NAIROBI.

Elephants and the International Union for the Conservation of Nature

On 10th April Dr K. Hillman gave us a lecture on what the I.U.C.N. is trying to do about Elephants. It is well known that they no longer exist in places where they were once numerous, and it is feared that their numbers are decreasing rapidly throughout the world. However, if anything is to be done to help them, and if Governments are to be persuaded to act, some more accurate information must be collected and suitable measures thought out. I.U.C.N. has appointed a group, directed by Iain Douglas-Hamilton to work on these problems. It has two sub-groups, one for Africa and one for Asia. Naturally this talk was confined to the work of the African sub-group. But should any of Dr Hillman's Asian colleagues come this way, it would be very interesting to hear about their work too.

The aim of the group is first of all to find out the present distribution and status of Elephants throughout the continent. Questionnaires and enquiries have been sent to the governments of all states where Elephants are known or supposed to exist, but some have not answered, and the knowledge shown varies from South Africa where the localities and approximate numbers of all their Elephants are known, to some West African states where small relict populations live in dense forest where it is impossible to see or count them. There is much to be learnt from tracks and droppings, as any old hunting book will tell you, but most modern counting is done from the air. Population trends can be calculated by looking for corpses. Elephant corpses last a long time, and even if the bones are scattered, a mark is likely to be left where the corpse has lain.

A previous lecturer told us that he thinks Elephants, though developed along quite different lines, have an intelligence comparable with that of the higher apes: but they have been beaten in life's race. The trouble, our present speaker told us, is that they really do compete with man. Their distribution has been much the same, and they need much the same ecological conditions. They cannot live in parts of the earth's surface that are useless to man. They are a source of wealth because of their ivory, and this is a natural resource that has been badly over-exploited. The I.U.C.N. is not opposed to careful cropping, and recognises that even controlled hunting may help conservation. There seems to have been a loss of about half the population here in Kenya since about 1970. Our speaker said little about the great drought

whose thousands of corpses her team must have been counting. But most of the loss must be put down to over-exploitation in the interests of getting rich quick with no thought for the future. Let us hope even against hope that all the nations of Africa, and Asia too, will adopt an enlightened policy towards these interesting fellow-creatures of our's.

'Corvinella'

SOCIETY CAMP AND DAY TRIP

Ol Lolokwe Camp - 24th - 27th March 1978

The camp at Ol Lolokwe over the Easter weekend was very well attended by over 60 people in 21 vehicles. The road was good all the way, and the camp site well shaded and covered with wild flowers. We split into two parties to climb the mountain, one going straight up, while the other went up the valley to the far ridge and then up the back of the mountain. Either way it was a long days walking and climbing, and starting at 8 a.m., it was an 11 hour day.

Highlights of the camp were : a Pearl-spotted Owlet, Glaucidium perlatum calling round the camp at dusk and dawn. A full eclipse of the moon seen as it rose over the thorn trees - a beautiful sight. The cycads, Encephalartos tegulaneus, on the top of Mount Lolokwe. Very large specimens which must be very, very old. The best specimens I have seen in East Africa. We were lucky to have Mike Gilbert, Botanist at the Herbarium on the camp who identified most of the flowering trees and plants seen.

One member of the camp was unlucky enough to be stung by a scorpion, of which there were many under stones and dry sticks. I am told the only antidote is Antihystamine and pain-killing pills. The pain is intense for 48 hours.

The weather was kind to us, and apart from two showers, we had sunny weather and beautiful views of the mountain. The Safari Rally came through from Wamba in the early hours of the 27th March. A few intrepid people got up to watch it, but most of us were content to enjoy the peace of Lolokwe and left the raucous racers go their own sweet way.

Altogether a very successful camp which should be repeated.

Tom Grumbley

'Dudu Crawl'

On 8th April this year about 20 adults, with the same number of children, came on the 'Dudu Crawl'. This took place in Karura Forest to the North of Nairobi. The weather was cloudy to start with, but changed to bright sunny periods in the afternoon.

The first stop, near the Forest Station offices, was not of very great interest. The most common insects were Crickets and Grasshoppers. It was noted that a large number of Grasshoppers had been affected by a fungus disease and were seen holding onto grass-stems with their hind legs at strange angles. All the specimens seen were dead, and must have numbered several hundred down the one track. It is probable that the continuous wet weather produced ideal conditions for the fungus. No other insects appeared to be affected.

It was down this track that we met Safari Ants, Dorylus sp. One of the children walked through a line and had obviously not met them before. I am sure that he will avoid them when he sees them again ! Another interesting observation was made with a millipede. I had always thought that a disturbed millipede rolled up into a spiral shape when attacked. I took one to show the children and it turned over on its back and wriggled around like a snake. This was repeated many times with the same one and later others were induced to do the same thing.

At the second stop (by now most of the children had retired) not much was seen, so the party, now down to four cars, moved on to the junction with the stream. After lunch, we went mainly for Butterflies. A Beautiful Monarch, Danaus formosa completely fooled us into thinking (wishfully?) it was a King Swallowtail, Papilio rex. It is interesting that normally the Monarch is much more common than the Swallowtail but this is the first Monarch of this species I have seen in Karura. Later we did see a King Swallowtail but even with an extention net of about five metres the Butterfly was too high. Towards 3 p.m. the clouds came up again and threatened rain so the 'Crawl' was abandoned.

'Barbatus'

SCOPUS

The first issue of the second volume of Scopus was published at the end of March. There is a six-page paper on the birds of Latham Island, Tanzania by J.D. Gerhart and D.A. Turner which is followed by a short paper on the African Pitta at

Gedi Ruins (near Malindi) by Galen Rathbun. The last paper in this issue is an account of the sightings of three intra-African migrants in coastal Kenya : the African Pitta, the Spotted Ground Thrush and the Red-capped Robin Chat. This paper, by P.L. Britton and Galen Rathbun, shows that there is still many unanswered problems regarding these birds and records of any of them from anywhere in East Africa will still be most welcome for the annual report issue (see the Request elsewhere in this Bulletin). There are eleven Short Communications covering Wahlberg's Eagle (two contributions, by A. Vittery and L.H. Brown), Wattled Plover (John Harpum), Madagascar Pratincole (C.W. Benson), Tockus Hornbills (Andrew A.E. Williams), Little Bee-eaters and Black-throated Honeyguide (C. Carter), Violet Wood-Hoopoe and Speckled-fronted Weavers (Peter and Jill Kaestner), Olive-tree Warbler (John Harpum), White-chested Alethe (C. Carter), Double-collared and Variable Sunbirds (Andrew A.E. Williams) and the Golden-backed Weaver (Jeffrey Walters).

Full details of how to subscribe to Scopus can be obtained from D.A. Turner, P.O. Box 48019, Nairobi.

REQUESTS

Annual Bird Report 1976/77

This annual report, which forms the fifth issue of volume 1 of Scopus, will be published about the middle of the year and will be sent to all the 1977 subscribers. A part of the report will be the publication of interesting bird records; if you have any which have not been published elsewhere, would you please submit them as follows, as soon as possible please.

1. Ethiopian and oceanic species to D.A. Turner, P.O. Box 48019, Nairobi
2. Palaearctic species to B.S. Meadows, P.O. Box 30521, Nairobi
3. Breeding records should be sent to the Hon. Nest Record Scheme Organizer, Mrs Hazel Britton, Shimo-la-Tewa School, P.O. Box 90163, Mombasa - preferably on the special Scheme cards which are available from the Secretary, Museum Bird Room or from Mrs Britton.

Seychelles

Two members and a friend from England need another woman keen on birds to join a trip to Seychelles in the first half of August, in place of someone who has dropped out. Details from Priscilla Allen, P.O. Box 14166, Nairobi, phone 745740.

THE BREEDING SEASONS OF EAST AFRICAN BIRDS

This paper, by Leslie Brown and Peter L. Britton, is a unique compilation of definitive information of the breeding seasons of East African birds, with every record dated, as precisely as possible, to month of egg-laying. Based on the East African Nest Record Card Scheme, it also includes the published literature and other sources back to the early years of this century. Nowhere in Africa or elsewhere in the tropics has so detailed an attempt been made to compile such a mass of information, and to relate it to climatic and other factors in an effort to asess the true reasons for breeding at a particular season of the year.

Preliminary sections deal with previous literature; list sources of data, with discussion of possible sources of bias; describe the categories of species by numbers of records; and discuss the five main climatic regions under which the information is grouped. For many species there are enough records to discuss their laying data in relation to more than one climatic region.

The species of birds are then listed. Excluding five species, there are 84,380 dated records for 351 non-passerine, and 433 passerine species. All reliable records from past literature have been included, as well as much original material.

The paper concludes with a discussion section in which the breeding seasons of thirteen categories of birds are considered in relation to the different climatic regimes. This subdivision permits a far more thorough discussion of the factors involved in controlling breeding seasons than has been possible before in any major tropical region, possibly in the world.

All major sources of information are listed in a full bibliography. This study will by an indispensable work of reference for all interested in African or tropical birds, especially in relation to breeding seasons. It pinpoints many subjects for future research; and will be essential for serious naturalists, libraries and institutions throughout the world.

J.S. Karmali,
Chairman

This very important paper will be published by the Society, and will, naturally, be expensive to print. Any donations, however small, will be most gratefully received. Crossed cheques should be made out to the Society and sent to the Treasurer. Ed.

LIBRARY

ALL MEMBERS ARE REMINDED THAT NO NON-REFERENCE BOOKS MAY BE BORROWED FROM THE LIBRARY UNLESS THIER CURRENT MEMBERSHIP CARD IS PRODUCED. PLEASE ENSURE THAT YOU HAVE YOUR CARD WITH YOU WHEN USING THE LIBRARY

The following are some of the new and interesting books in the library:

Rodwell, E. Gedi: the lost city
Shaw, E.M. Man in Southern Africa: the Hottentots
" " " " " " : the Bushmen
Geriffits, C. Guide to the Benthic Marine Amphipods of South Africa
Wilson, E.O. Sociobiology - a new synthesis
Rathbun, G. The ecology and social structure of the Elephant Shrews, Rhynchocyon chrysopygus Gunther and Elephantulus rufescens Peters (Doctoral thesis)
Batter, L. et.al. Birdwatchers Year
Miller, H. Seychelles, a visitor's guide
Grzimek, B. Animal life encyclopedia Vols 1 - 13
Willis, J.C. A dictionary of the flowering plants and ferns (8th edition)
Leftwich, A.W. A dictionary of Zoology
Sudd, J.H. An introduction to the behaviour of ants
Eyre, S.R. Vegetation and soils - a world picture
Simmons, I.G. The ecology of natural resources
Richards, B.N. Introduction to the soil ecosystems
Bell, C.R. Plant variation and classification
Black, R.M. The elements of palaeontology
Eaton, R.L. The Cheetah

SOCIETY NOTES

The following books are still available to members at special discount prices :

Medicinal Plants of East Africa by Dr. J.O. Kokwaro, our Vice Chairman. Hard Cover books only - cost Shs. 85/-. If you would like the book posted to you, please include Shs, 6/30 for postage

Upland Kenya Wild Flowers by Dr Andrew Agnew. This excellent work on Kenya wild flowers is available to members only at Shs. 150/-. The Society is helding the last copies in print, so you should collect your copy as soon as possible.

Wild Flowers of the World by Barbara Everard and Brian D.

Morley. Only two copies of this wonderful book remain - first come first served ! Only Shs 75/-. Available in the Society's office.

Lake Nakuru by Charles A. Vaucher. Beautifully illustrated, and only Shs. 50/-. An ideal souvenir of this lovely lake.

Faces of Kenya by David Keith Jones. Shs. 180/- to members. A wonderful book with excellent photographs, reviewed in the January/February 1978 Bulletin by our Chairman, John Karmali. Available in the Society Office.

Informal Notes are obtainable in the Office. Sets of twelve cards with envelopes comprising two cards of each of the six designs. Air mail weight (less than 10g). Only Shs 10/- per set.

Car Stickers. Plenty in stock and only Shs. 2/- each.

Lecture times. Enclosed in this issue of the Bulletin there is a short questionnaire asking Nairobi members about the times of Society lectures. Please return the completed form to the Secretary, and if it is obvious that a certain time would be preferred for lectures, the Committee will change them.

No Sale ! There has only been one order for Mr Carcasson's book, A Field Guide to the Coral Reef Fishes of the Indian and West Pacific Oceans which was reviewed in the March/April Bulletin. As a result, we regret that we are unable to stock this book for sale to members.

Library Members are reminded that the Library is now open on Saturday mornings from 9.30 a.m. till 12 noon, specially for those who cannot make use of it at other times. The Librarian will be pleased to see you.

Posters are available in the Office, free of charge. If you know of an office or club that would be willing to display our attractive poster, please call in and collect some. If you have already put up a poster and notice that it is becoming tatty, please collect a replacement.

Information needed from all those members who attend Society camps and day trips. In the Society office there is a large file filled with locality lists obtained from members attending Society functions, lists covering birds, mammals, plants etc. The last list in the file is from a camp held five years ago. If you go on a camp, please complete a list of the species noticed, and sent it to the Secretary. Thank you.

NEW MEMBERS

The following new members have been elected to the Society

Local Full Members

Mr Jorn Bache, P.O. Box 30521, NAIROBI
Mr Barrett, P.O. Box 40751, NAIROBI
Mrs A.S. Bennetts, P.O. Box 30656, NAIROBI
Mr R.N. Bennetts, P.O. Box 30656, NAIROBI
Mr Richard Braund, P.O. Box 10222, NAIROBI
Miss Susan M. Carnegie, Ngobit Estate Ltd., Private Bag, NARO MORU, Kenya
Mr J.W. Carter, P.O. Box 30357, NAIROBI
Mr Wycliffe Andrew Chapya, I.C.I.P.E. Research Centre, P.O. Box 30772, NAIROBI
Mr Gordon B.A. Church, P.O. Box 20138, NAIROBI
Mrs Megan Cowling, P.O. Box 14728, NAIROBI
Mrs Pat Dixson, P.O. Box 24886, NAIROBI
Mrs Coila M. Field, P.O. Box 41425, NAIROBI
Mr C.D. Foxall, P.O. Box 43844, NAIROBI
Mrs Marcia Gordon, P.O. Box 51678, NAIROBI
Mr W.N. Holmes, Kenya Triangle Ranches Ltd., P.O. Box 99221, MOMBASA, Kenya
Ms. Penelope Hughes, P.O. Box 14390, NAIROBI
Dr A.D. Irvin, P.O. Box 30709, NAIROBI
Mr Philip Leakey, P.O. Box 15527, NAIROBI
Mrs S. Lennox, P.O. Box 18130, NAIROBI
Mrs Lars Moree, P.O. Box 14724, NAIROBI
Mr Peter R. McCosh, P.O. Box 45992, NAIROBI
Mr P.M. Ndunda, Mukaa Sec. School, P.O. Box 7073, KILOME, Machakos, Kenya
Mr Francis O'Kelly, c/o U.N.E.P., P.O. Box 47074, NAIROBI
Mr J. Ouwerkerk, P.O. Box 14733, NAIROBI
Miss Rosemary Owen, P.O. Box 388, NAKURU, Kenya
Mr and Mrs P. Thacher, P.O. Box 47074, NAIROBI
Mr O. van der Wal, P.O. Box 14733, NAIROBI
Mrs Joan E. Westwell, Lenana School, P.O. Box 30253, NAIROBI

Local Junior Members

Andrew Bircher, P.O. Box 42196, NAIROBI
Maia Chakerian, c/o American Express, P.O. Box 40433, NAIROBI
Susan Cooper-Smith, c/o American Express, P.O. Box 40433, NAIROBI

SOCIETY FUNCTIONS

Monday 8th May 1978 at the Museum Hall, Nairobi at 5.30 p.m. Mr John Reynolds will show slides illustrating various features of African bird ecology and behaviour.

Sunday 14th May 1978 A trip down the Magadi road to re-find a new species of Euphorbia. Please meet at the National Museum at 8.30 a.m. and bring a picnic lunch and drink.
Saturday 27th May 1978 A visit to Mr and Mrs Cameron's fern garden at Limuru. Please meet Miss Allen at the National Museum at 2 p.m. sharp. Mr M. Gilbert of the Herbarium will accompany the party as botanical expert.
Monday 12th June 1978 at the Museum Hall, Nairobi at 5.30 p.m. Dr David Western will give an illustrated lecture on 'Amboseli- a decade of change'.
June 17th/18th 1978 Week-end excursion near Kajiado. Leaders Dr J. Darlington and Dr and Mrs van der Gronde. It is proposed to study birds, insects and plants in the vicinity of Kajiado. Members should be prepared to camp, bringing all equipment, food and water. As Kajiado is about 80km from Nairobi, members could join for one of the days only. Anyone wishing to come please fill in the enclosed slip and return it to Mrs A.L. Campbell, P.O. Box 14469, Nairobi with a stamped addressed envelope before 1st June. Further details will be sent to members nearer the date.
July 1st/2nd 1978 (Please note that these are the correct dates) and adjoining dates as wanted. Visit to Kimana Lodge (between Amboseli and Tsavo), approach road via pipeline road from Sultan Hamud. The Society has been offered the following special rates: Adults Shs. 120/-, children under 12 Shs 65/- (full board). Children under 3 free. If you would like to take advantage of this offer to see a new Lodge, please fill in the form sent with the March/April Bulletin and return it with full payment to Mrs A.L. Campbell, P.O. Box 14469, Nairobi enclosing a stamped addressed envelope as soon as possible.
Monday 10th July 1978 at the Museum Hall, Nairobi at 5.30 p.m. Mrs Jean Hayes will give an informal talk on birds illustrating each species with sound and skins/pictures.
July 14th 15th 16th Week-end camping excursion to the Shomboli area, south of Magadi. Leader Mr P.D. Kelly. Sturdy vehicles only. Members should bring all equipment, food, water and petrol for return journey. Anyone wishing to take part in this excursion should please fill in the enclosed slip and return it with a stamped addressed envelope to Mrs A.L. Campbell, P.O. Box 14469, Nairobi before June 24th. Further details and route map will be sent nearer the date.
Sunday 13th August 1978 day excursion to Hell's Gate. Leader Dr J. Gerhart. Details later.
Monday 14th August 1978 at the Museum Hall, Nairobi at 5.30 p.m. Filmshow 'Flight for Survival' by kind permission of World Wildlife Fund.
Further dates: 11th September, Mr and Mrs P. Gerrard will lecture on the American Bald Eagle, 9th October Mike Clifton will give an informal lecture on Butterflies, first week-end in December Mrs Fleur Ng'weno and Dr J. Gerhart will organise a bird census. Wednesday morning bird walks leave the Museum at 8.45 a.m.

THE EAST AFRICA NATURAL HISTORY SOCIETY

Chairman: J. S. Karmali
Vice Chairman: Dr J. Kokwaro
Editor, Jl E. Africa nat. Hist. Soc. Nat. Mus.: Mrs J. Hayes
Secretary/Treasurer: Miss D. Angwin
Ass. Secretary/Treasurer: Mrs E. B. Angwin
Librarian: Dr J. Kokwaro
Executive Committee (in addition to the above): Miss P. M. Allen, G. C. Backhurst (*Ringing Organizer*), Mrs A. L. Campbell, M. P. Clifton (*Editor EANHS Bulletin*), Dr J. Gerhart, Dr J. M. Mutinga, Dr D. J. Pearson, J. F. Reynolds.
Co-opted Members: Mrs H. A. Britton (*Nest Record Scheme Organizer*), P. Davey, M. Gilbert, Dr A. Hill, J. Maikweki, J. Miskell, M. Mukoko, Mrs F. Ng'weno, D. A. Turner.
Journal Editorial Sub-Committee Mrs J. Hayes, Miss D. Angwin, Mrs V. Balcomb, M. P. Clifton, Dr D. J. Pearson, J. F. Reynolds, Dr A. Hill.
Ornithological Sub-Committee Dr D. J. Pearson, D. A. Turner, G. C. Backhurst, Mrs H. A. Britton, P.L. Britton, Dr A. W. Diamond, Dr J. Gerhart, B. S. Meadows, J. F. Reynolds, D. K. Richards, A. D. Forbes-Watson, C. Mann (London) Dr M. Carswell (Kampala), Dr K. Howell (Dar es Salaam).
Joint Library Sub-Committee (Society representatives) Dr J. Kokwaro, Mrs J. Hayes, M. P. Clifton.
Functions Sub-Committee Mrs A. L. Campbell, Mrs E. B. Angwin, M. Gilbert.

MEMBERSHIP

This offers you free entry to the National Museum, Nairobi; free lectures, films, slide shows or discussions every month in Nairobi; field trips and camps led by experienced guides; free use of the Joint Society-National Museum Library (postal borrowing is also possible); reciprocal arrangements with the Uganda Society's Library in the Uganda Museum, Kampala; family participation: wives and children of members may attend most Society functions; one copy of the *EANHS Bulletin* every two months; a copy of each *Journal* published during your period of membership; the Society controls the ringing of birds in East Africa and welcomes new ringers and runs an active Nest Record Scheme; activities such as plant mapping and game counting are undertaken on a group basis. Membership rates are given at the foot of this page.

JOURNAL

The Society publishes *The Journal of the East Africa Natural History Society and National Museum*. Each issue consists usually of one paper, however, sometimes two or more short papers may be combined to form one number. The aim of this method of presentation is to ensure prompt publication of scientific information; a title page is issued at the end of each year so that the year's papers may be bound together. Contributions, which should be typed in double spacing on one side of the paper, with wide margins, should be sent to the Secretary, Box 44486, Nairobi, Kenya. Authors receive twenty-five reprints of their article free, provided that these are ordered at the time the proofs are returned.

E.A.N.H.S. BULLETIN

This is a duplicated magazine issued six times a year, which exists for the rapid publication of short notes, articles, letters and reviews. Contributions, which may be written in clear handwriting or typed, should be sent to The Editor (*EANHS Bulletin*), Box 44486, Nairobi, Kenya. Line drawings will be considered if they add to the value of the article. Photographs cannot be published.

SCOPUS

The Ornithological Sub Committee publishes this quarterly bird magazine. Cost: EANHS members KShs. 50/- p.a., non-EANHS members KShs. 75/- p.a. All correspondence to D. A. Turner, Box 48019, Nairobi, Kenya.

MEMBERSHIP SUBSCRIPTION RATES

Life	One payment: Kshs. 750/-
Institutional (schools, libraries) .	annual payment: Kshs. 50/-
Full Local	annual payment: Kshs. 50/-
Overseas	" " Kshs. 70/-
Junior (full-time student, no *Journal* supplied) . . .	annual payment: Kshs. 10/-

Subscriptions are due 1st January. From 1st July you may join for Kshs. 35/- and receive publications from that date. Application forms for membership are obtainable from the Secretary, Box 44486, Nairobi.

QH
7
E135
EA
NH

EANHS

BULLETIN

SMITHSONIAN
LIBRARIES

A publication of the East Africa Natural History Society, Box 44486, Nairobi, Kenya. Price 4 shillings

NOTES FOR CONTRIBUTORS

Members of the Society (and non-members) are asked to follow these simple instructions when writing articles or letters for submission to the *Bulletin*. The *Bulletin* is presented six times a year in a duplicated format: the paper size is 20.5×23 cm (10×8 inches), line drawings can be reproduced but the area should not be more than 17.5×23 cm. Lettering on figures should preferably be in 'Letraset', neatly done in Indian ink or left blank: if the last method is followed, the lettering should be indicated on an overlaying sheet and should *not* be done on the figure. Figures should be prepared on good quality white writing paper and not on Bristol Board or other thick material. Whenever plants or animals are mentioned the scientific name should also be given but not in parenthesis. Trinomials should not be used unless there is good reason to do so. Author's names of species are not required.

Contributions may be typed (preferably) or written clearly and should be sent to: M. P. Clifton, Box 44486, Nairobi, Kenya. Receipt of contributions will be acknowledged.

CONTENTS

Awfully Beautiful - Nephila 74
Some Observations on a Large Passage of the Brown-veined White, Anaphaeois aurota 76
The African Armyworm - Its True Identity 78
Vertical Migrations of Butterflies on Mt. Kenya 79
Tettigoniids or Katydids 81
Ocular envenomation by a Toad in the Bufo regularis Species Group : Effects and First Aid 82
Carnivorous Habits of Hornbills 84
Silvery-cheeked Hornbills Congregating in Large Numbers . . 85
Thika as a Locality in the Overlap Zone between Two Races of the Black-faced Waxbill 85
Additional Notes on the Black-faced Waxbill 87
Leg Injury to Birds of Various Species 88
Co-Operative Feeding of Young by Adult and Sub-Adult Red-knobbed Coots 88
Co-Operative Feeding of Young by White-crowned Shrikes . . 89
Unusual Colouration in Laughing Dove 89
White-fronted Bee-Eater, A Nesting Colony 89
Field Meetings in May 90
Society Lecture Notes 91
Letters to the Editor 94
Request for Information 95
Books for Sale 95
Council for Human Ecology, Kenya 95
Society Notes 96
New Members 97
Society Functions 98

AWFULLY BEAUTIFUL - NEPHILA

One has to admit that Nephila is beautiful, but she is a spider, a big one, and I have always loathed spiders. On the other hand I spend a lot of time watching her, she is fascinating, and not in the least bit repulsive.

Her legs are long and slender, mostly a shining black, with three long joints, the middle one is bright red in her front two pairs. In her adult form, if her legs were stretched out they would be about 7 - 8 cm long. Her head is black, and she has a pair of 'grabbers' (palps), one on either side of her jaw, with which she holds her food while she eats, then her cephalothorax to which all four pairs of legs are attached on the underside is also black with white web-like markings on the back, about 1 - 1½ cm long; a slender waist connects her body. The body is cream and black mottled and striped on the underside, and on top is beautifully marked, creamy white on the sides going to yellow in the middle, with black markings, very difficult to describe; not spots but eyelets, maybe a bit python-like in design; however, the design is very definite and they all have it though in different intensity. The body is about 5cm long, oval in shape, and pointed at the tail end, under which is the vent from whence she draws her seemingly unending supply of golden web. So you can see she is a large spider. The measurements I have given are only very approximate, and I have no intention of handling her to make them accurate. No one can tell me if she bites, I feel she does, and it would probably be poisonous.

We first saw Nephila when she had constructed her golden web over the top of a small fish tank we have on our front verandah, in March 1977. Round the sides and back of the tank grow fairly large Crotons, and she had taken her web right across - about a metre in diameter, and beautifully evenly woven; the whole web was a bright golden colour which shone in the sun, each strand being unbelievably strong and elastic for such fragile looking material. Nephila sat in the middle of her web and every time an insect was caught in it she would quickly dance down to collect it, and then yanking some web from her tail end, would wind up the insect into a tight cocoon, completely immobilizing it. She then retired to the middle of her web, munched her meal and sucked out the juices. If the insect was a butterfly or other winged variety, she chopped the wings off before binding it up - or in the case of a grasshopper, the back legs went too. I have dropped a piece of bourgainvillea gently into her web, but she is not to be fooled, she ambles over, unsticks it and chucks it over - her web is always neat and clean. Sometimes an extra large beetle makes a hole in it, so she darns it up. Very often we would see the male in the web too. These are only about 2cm long altogether, but whether there were several at different

times who just disappeared, or the same ones kept coming back, I've no idea. I'm told that in any case once their useful days are over they are eaten too. Sometimes several small spiders seemed to be wandering round the web, but she took no notice of them.

I wrote a letter to a friend in the National Museum and told him about our spider, which is how I found out her name. He said, 'Little is known about them...eggs are laid in a mass, often a great distance from the web, numbers unknown, and rate of growth unknown, or really when they return to parental web and when they depart to start off on their own. Males do not last very long having mated, but be careful of the commensals, other species which utilise the Nephila's web. Again their relationship to the owner is little known. Any notes made would be of great interest'. So we started spider watching.

We watched her until nearly the end of September during which time she grew steadily, and in the end was, as I said, a very large and beautiful spider. I suppose she about trebled her size in the six months she was with us.

Suddenly on the morning of the 28th September she was gone, the web was broken, bebraggled and empty. We missed her very much, but we could now get to the fish tank to clean it and feed the fish without having to dodge and pick our way under web. We had no idea what had happened, but on searching we found a tight little heap of hundreds of tiny baby spiders, each about the size of a pin-head, up in the corner of the varandah roof in the crotons, these seemed to disappear in time when they grew a little larger.

Early in December we found three very small but perfect Nephila webs in the crotons where the original one had been, but they were only there for three weeks. Again something must have taken them.

At the begining of January - we found the first one on the 4th - several spiders began appearing in various places in front of our house and in the garden. In all in the course of a week, six built their webs in front of our main verandah, outside the wrought iron burglar proofing. They did not try to come inside, and seemed to prefer the sun, wind and rain, and they certainly toss around when the wind blows, their webs are so elastic though that they don't tear apart very often. These six grew very fast indeed, but one night, exactly a month after we first saw them, there was havoc, only one smallish one was left in the mass of torn and ruined webs. We had noticed bats flying around in the evening and they must have found the spiders.

I also saw a small lizard leaping on to the web, and off again. I do not know what the lizard is called, he is quite common around this area, a very pale grey, about 7cm long, with a black and white head, he is very fast, chunky with a short tail. He may also feed on spiders.

There has been a population explosion on the North Coast of these spiders, they are appearing everywhere, and we now have lots in various parts of our garden, and in gardens and bush up the beach too. In amongst the electric light wires on the main Malindi/Mombasa road there are colonies of these spiders, from Vipingo to the Total Petrol Station you can count them in hundreds, and also beyond, as far as Mtwapa. They are in the wires on the Gede/Watamu road, and are thriving. Bats do not like flying between the wires, it upsets their radar system I'm told. I even saw four with their webs strung up between bits of coral on a small coral outcrop island we have just inside the Mida Creek, which proves, I think, that the young must be windborn in some way.

The one remaining spider outside the verandah is still with us, and is quite used to my showing her off. I spend a lot of time watching her darn up her holes - in the high wind we have had lately, large leaves get blown in and tear the web. She now has a large larder stocked up in a line on her web, above which she sits. Whether these insects are put there because she caught more than she could eat, or whether they are part of a food bank for her reproductive programme, I've no idea - they look like empty shells to me, but then why would she suddenly store empty shells instead of dropping them over after being sucked dry as she did before ?

I'll keep watching her, if a bat does not get her, and hope to see what happens next.

Anne V. Donnelly,
P.O. Box 420, MALINDI,
Kenya

The lizard mentioned is probably the diurnal gecko - Lygodactylus picturatus. Ed.

SOME OBSERVATIONS ON A LARGE PASSAGE OF THE BROWN-VEINED WHITE ANAPHAEOIS AUROTA

I don't know when it started although butterflies were moving in a southerly direction in some numbers at Kianyaga on 28th January 1978. Movement was obvious by 2nd February when large numbers of Brown-veined Whites, Anaphaeois aurota were

crossing the Nairobi/Thika road, heading South East. They were first noted about 25km from Thika and were seen in numbers all the way back to Thika.

I did some rough calculations on the numbers passing in a 100m front between my garden and the Thika River on the outskirts of Thika between 16.00 and 17.30 hours on 2nd February. After this time passage slowed and had stopped by about 18.00 hours. About 20 butterflies passed every five seconds across the 100m front making about 240 butterflies per hour, or 2,400/km front/ hour.

Passage continued heavily on 3rd, 4th and 5th February, heaviest in late morning and afternoon. Using the result of my above calculation and considering only the period of heavy passage between 10.00 and 17.00 hours, the number of butterflies passing on a 5km front at Thika on 2nd - 5th February would have been in the order of 336,000.

Passage was still obvious on 10th February but petered out within a few days of this date, although I kept no records of the precise date.

The butterflies took about eight seconds to cross the 20m width of my garden which means a flying speed of roughly 10km/ hour. Most of the butterflies were flying between 1 and 3 metres above the ground but rising to pass over bushes, fences, trees and buildings. The flight was direct and purposeful, very few butterflies stopping and then only momentarily at flowers.

On the 4th February more heavy passage was observed on the Kinangop Plateau at 2,850m with the butterflies moving towards the Rift Valley. Between the Kinangop Plateau and Mangu, passage continued through every kind of country, even forested, mostly passing westerly but in some places moving East. This is in contrast to those at Thika which were moving South-east.

Anaphaeois aurota is a well known migratory species but I am unable to say where these individuals were coming from nor where they were going or for what purpose. It would be interesting to hear comments of an entomologist on these points.

Mr W.J. Plumb,
Thika High School,
Private Bag, THIKA, Kenya

At present the movements of this butterfly are so confused that we have been unable to find any pattern. I have seen one migration where one group of butterflies was moving East, and the other, through them, were going South-west. The reason for these

movements is also in doubt as I mentioned in the article on butterfly migration in the March/April 1978 Bulletin.

Mr M.P. Clifton,
Entomologist, National Museum,
Nairobi.

THE AFRICAN ARMYWORM - ITS TRUE IDENTITY

To many people living in East Africa, the Armyworm often poses a serious threat to their crops, and yet there is still widespread uncertainty as to the identity of this pest, to the extent that any caterpillars that appear are labelled 'Armyworms'.

Most people, when asked will say that the Armyworm is the white butterfly that may often be seen flying about in large numbers, however this is probably Anaphaeois creona, and certainly not Armyworm (see Clifton's article in the March/April 1978 Bulletin). Other people say that Armyworm is the caterpillar that defoliates the Croton trees from time to time, however they are all wrong!

The adult of the Armyworm is, in fact, a small grey-brown night flying Noctuid moth called Spodoptera exempta (Walker). The moth is about 2.5 - 4 cm across its open wings, and is characterised by, amongst other things, its white hind wings which are traversed by black veins. The moth itself does no damage. The caterpillar - the stage that does the damage - of the Armyworm, so called because of its marching habits when in large numbers, is well known, being, in the gregarious 'phase', black without hairs, with pale lateral lines and a yellow underside. There are three longitudinal lines on the first segment behind the head and an inverted 'Y' on the front of the head.

There is another 'phase' or form - the solitary phase - which is much less often seen, which skulks at the base of the food plant and is in overall colour various shades of green or brown. It is the black 'phase' caterpillars which are the damaging Armyworm.

Armyworm caterpillars are very conservative in their food habits, and feed almost entirely on Gramineae (grasses, maize, rice, wheat) and a few Cyperaceae (sedges). There are isolated examples of them having attacked Dicotyledons, but these are rare, and were probably attacked as a last resort, the larvae having eaten out their normal foodplants.

It is because of their preference for grain crops that they are such a serious pest in countries where such plants form the

staple diet of many people.

The moth itself is a migrant, and it is thought to move with the winds of the Inter-tropical-convergence zone (I.T.C.Z.) which brings the rains to East Africa; there is now evidence to suggest that there may be low density populations present in certain areas throughout the year and that these may boost the migrant populations in outbreak years.

In the majority of cases Kenya is 'at risk' during the period from October until June, and Tanzania from January until April. Outbreaks usually begin in southern Tanzania and as the season progresses, move gradually northwards through Kenya, into the southern Sudan and Ethiopia, and may even reach as far North as the Yemen.

A forecasting service, giving weeks' notice of the probability of outbreaks in specific areas was developed for East Africa and has been very successful. We are now extending this service to cover the whole of Eastern Africa.

We are, with the help of the Ministries of Agriculture and Government entomologists in the countries concerned, as well as outside agencies, trying to understand more completely the biology and ecology of this important pest in order to be able to develop an efficient and effective control strategy for both farm and rangeland.

Any reports of outbreaks of Armyworm, however small, will be gratefully received and followed up as far as possible.

C.F. Dewhurst,
Armyworm Research Project,
c/o Desert Locust Control
Organisation for E.A.,
P.O. Box 30023, NAIROBI.

VERTICAL MIGRATIONS OF BUTTERFLIES ON MT. KENYA

During January and February 1978, an unusually high concentration of Butterflies of the species Anaphaeois aurota, the Brown-veined White, were noted in the vicinity of Mt. Kenya. Casual observations carried out in alpine areas adjacent to Mt. Kenya's highest peaks (Liki North and Teleki valleys) showed an interesting phenomenon relative to these large numbers of Butterflies.

On warm, calm, sunny days (air temperatures at ground level being approximately 12 - 15.5°C (55 - 60°F) at 4,267m (14,000')

elevation within the above mentioned valleys), large numbers of these insects were noted migrating up the valleys, presumably flying or gliding effortlessly on the diurnal up-valley wind currents generated by warm air masses rising up-slope from lower on the mountain. Concentrations were high enough to give the appearance of veritable 'snow flurries' of Butterflies moving with the gentle air currents. They exhibited little or no activity relative to food gathering or flower polliation, as they seldom landed voluntarily on plants or the ground during these migrations when direct sunlight was present.

As often is the case around Mt. Kenya, scattered clouds built up in the vicinity of the main mountain peaks (elevations from 4,572 to 5,182m (15,000 - 17,000')) during mid afternoon (noon to 4 p.m.) periodically blocking out direct sunlight. Air temperatures can resultingly drop incredibly fast - greater than 9.5°C (15°F) in a matter of minutes, and similarly rise back up again when sunlight returns.

It was noted that when clouds blocked direct sunlight, many Butterflies that were flying near the ground would momentarily land on the local vegetation (tussock grass and Giant Senecio); however, there were many which also plummeted seemingly uncontrolled from much higher up in the sky at a very rapid rate, landing on the ground with their wings folded. Observations of individuals that had just hit the ground showed them to be in an apparently paralysed state. With time, usually a matter of a few minutes, individuals that had landed on warm objects such as rocks and various vegetation, or those re-exposed to direct sunlight seemed to revive their motor functions and/or vitality and would resume flight. Individuals that fell onto snowfields seemed not to revive and were noted dotting snowfields in estimated concentrations of at least 5 per square metre above 4,572m elevation.

Some of the highest concentrations of Butterflies exhibiting this behaviour were noted at Point Tereri at 4,572m gliding up out of sight from downslope and periodically 'snowing' down again, even while sunlight was unobstructed. None of the Butterflies at this alpine level of snow and rock seemed to land voluntarily.

It could be hypothesized from these limited casual observations that these butterflies were participating in a simple dispersal migration and were becoming incorporated in rising air masses present each day in the vicinity of Mt. Kenya. Such rising air masses, and anything borne within them, are subject to a dry adiobatic cooling rate of approximately 3°C (5°F) per 305m (1,000') of elevation gain. Thus, Butterflies were able to pass from warm lower conditions to temperatures

approaching freezing in a matter of minutes, slowing down their metabolism to a point where they became immobilized and plummeted involuntarily from the sky. Those that did not attain such great heights and thus cold temperatures, but were subject to rapid cooling due to blockage of direct sunlight simply voluntarily landed and did not resume flight until the temperature rose up again.

Further, more specialized, careful studies should be employed to test out this interesting phenomenon of vertical migration in Butterflies.

Lou Awodey,
Biologist, National Outdoor Leadership School,
P.O. Box 67, NARO MORU,
Kenya

Photographs of the Brown-veined White Butterfly impaled on grass stems, taken on Mt. Kenya in January 1978, were sent in by Mr K.V. Cooper. Hopefully, this interesting observation will be written up in the next Bulletin. Ed.

TETTIGONIIDS OR KATYDIDS

The insects which have appeared in Nairobi over the last two months or so, particularly around the street lights at night, are not Locusts, but Bush-Crickets (family Tettigoniidae) or, to the Americans, Katydids. These are Long-horned Grasshoppers, so called as their antennae are very long and thin, as opposed to the Short-horned Grasshoppers, the true Grasshoppers and Locusts.

Very little appears to be known about the group as a whole, but it is supposed that under optimum conditions, a population explosion occurs, forcing the whole lot to look for more food. It is thought that they feed mainly on the leaves of bushes, and they are of no importance to agriculture. One species in the group however, is reported to be a very minor pest on Sweet Potatoes in Central Province, Kenya. Like Termites, almost anything eats them, from shrews through birds to Man ! The species is Homorocoryphus vicinus and seems to erupt periodically. Our last invasion, not as large as this one, was in the middle of 1973.

The species comes in two colours (morphs), one bright green and the other pale brown. The majority are green. We do not know the connection between these two colours and it does not appear to be as in the Desert Locust, Schistocerca

gregaria where the darker form is caused by over-crowding and so produces the dangerous migratory phase. The brown form of the Tettigoniids does not consist of more than 10% of the population.

M.P. Clifton
Entomologist,
P.O. Box 40658, NAIROBI.

OCULAR ENVENOMATION BY A TOAD IN THE BUFO REGULARIS SPECIES GROUP: EFFECTS AND FIRST AID

Toads of the Bufo regularis species group are probably the most familiar of all amphibians to residents of East Africa. They occur in large numbers, are often seen in the vacinity of human habitation, and their loud calls further emphasize their presence. They are also used by many schools as laboratory and dissection animals when other better-studied but perhaps less readily available anurans such as Rana spp. and Xenopus spp. cannot be obtained.

Because of the high frequency with which Bufo spp. may be encountered by casual observers, naturalists and students, it is useful to be aware of the slight hazard involved when handling them. Amphibians in general have mucous glands in the skin (in some species the mucus is poisonous) and most if not all anurans also have poison glands in the skin as well; these glands may be distributed over much of the body surface. In many toads, large poison glands, the parotoids, are located behind the eye. Most people can handle amphibians with no ill effects, but other individuals may find that their skin is irritated by the secretions of the amphibians. However, while the secretions of toads do not usually irritate the hands of most people, the same secretions when unintentionally transferred to the eyes cause severe pain and irritation. For those readers with botanical inclinations, the effect is similar to that of transferring the milky white sap of Calotropis spp. (Asclepiadaceae) to the eye.

The unpleasant effect of toad venom passing directly into the eyes (ocular envenomation) is illustrated by the following example: a student who was dissecting the cranial nerves of a toad began by making an incision on the dorsal surface of the head. This cut pierced one of the large poison (parotoid) glands and a spurt of milky white venom travelled a distance of about 50cm into one of her eyes. The eye and eyelid immediately began to show signs of intense irritation and the eyelid began to swell. She described the pain as 'burning' and

'itching'. The eye was rinsed in running tap water for five minutes. Following the advice of a physician, the eye and affected area were again rinsed with tap water several times and soothing eyedrops were administered. Six hours after envenomation the eyelid was still swollen and the area affected was still painful; 24 hours after venom had entered the eye, it was only slightly sore and the eyelid was no longer swollen. The eye did not become extensively bloodshot or further damaged as has been reported in the cases of ocular envenomation by Spitting Cobras (Spawls, 1976; Warrell & Ormerod, 1976).

Rose (1962) mentions a reported case in which Bufo pardalis was said to have ejected venom from its parotoid glands a distance of one metre into the eyes of an observer who then suffered extreme pain and inflammation of the eyes for some days. To the best of my knowledge this report has never been substantiated and I have come across no further reports of venom ejection by Bufo spp.

Those with only a casual interest in toads may be surprised to learn that the poison has such a strong effect. The poison of a European toad, B. calamita, contains two toxins, bufotalin and bufogin. In the stomach these cause nausea, respiratory and muscular impairment, and they have a reaction similar to that of digitalis on the heart (Cochran, 1961 ; Parker & Haswell, 1964). If a cat or dog bites a toad, the attacker foams at the mouth (Wagner, 1965) and large vertebrates may be killed by the effects of toad venom (Porter, 1972).

Much remains to be learned about amphibian poisons, and it is best to handle all toads and frogs with care. Certainly their poisons are effective among themselves; it is common knowledge among amphibian collectors that if other species of frogs are placed in a container with the Red-banded Frog, Phrynomerus bifasciatus, the poison of the latter will kill the others. Jaeger (1971) has described an incident illustrating the effects of P. bifasciatus venom on humans.

Given the potency of Bufo venom and the frequent encounters with Bufo spp. and man, the following suggestions may be useful:

1. All those who handle toads should wash their hands immediately afterwards; prior to washing, avoid bringing the hands into contact with the eyes, nose and mouth.
2. Those dissecting toads should be aware of the danger of puncturing the parotoid glands.
3. A medical doctor consulted suggested the following first aid for toad venom in the eye: flood the affected area with large quantities of saline solution (if in the laboratory) of tap water (if saline is not available). The venom

is rather viscous and so large quantities of liquid may be needed to remove it from the eye and surrounding area.

REFERENCES:
Cochran, D.M. 1961 Living Amphibians of the World. Hamish Hamilton, London. 199pp.
Jaeger, R.G. 1971 Toxic reaction to skin secretions of the frog Phrynomerus bifasciatus. Copeia 160 - 161.
Parker, T.J. & Haswell, W.A. 1964 A Text-book of Zoology, 7th edition, revised by A.J. Marshall. Macmillan, London. 952pp.
Porter, K.R. 1972. Herpetology. W.B. Saunders, London. 524pp.
Rose, W. 1962. Reptiles and amphibians of South Africa. Maskew Miller, Capetown. 494pp.
Spawls, S. 1976. Notes on spitting by a Red Spitting Cobra, Naja mossambica pallida. EANHS Bulletin: 70 - 71.
Wager, V 1965. The Frogs of South Africa. Purnell and Sons, Capetown. 242pp.
Warrell, D.A. & Ormerod, L.D. 1976 Snake venom ophthalmia and blindness caused by the Spitting Cobra (Naja nigricollis) in Nigeria. American Journal of Tropical Medicine and Hygene 25: 525 - 529.

K.M. Howell,
Dept. of Zoology,
P.O. Box 35064,
DAR ES SALAAM, Tanzania

CARNIVOROUS HABITS OF HORNBILLS

With reference to the note by J. Baker and P.B. Allen in the May/June 1978 Bulletin, I should like to add a note on what I myself have seen in Westlands, Nairobi. The Acokanthera trees in my garden have been in heavy fruit this year, and Silvery-cheeked Hornbills, Bycanistes brevis, have visited them in parties of about a dozen at a time from about the end of February until about the end of May. On one particular day, Saturday 11th March, they seemed to go on the rampage. Instead of going straight to the Acokanthera, they gathered noisily in a tall Albizia tree, at the time leafless, and in a dead Erythrina close by. They jumped up and down in the Erythrina so that many of the small dead branches fell down, and tore off pieces of bark with their bills. A fellow member, Mrs Inge Ayres, who lives down the same road, told me that in her garden they systematically searched the bushes for the nests of small birds, such as Mannikins, Lonchura cucullatus which they tore to pieces, dropping the eggs on the ground and eating the young birds. I did not observe this behaviour in my garden (which is not to say that it did not occur), but my cook showed

me a Dove's nest in another, living, Erythrina, with the eggs broken on the ground underneath, and declared that the 'Magogo' had eaten the 'Datura' itself ! I found it hard to believe that even Bycanistes brevis could swallow a Red-eyed Dove, Streptopelia semitorquata, which is our commonest species, or even a Laughing Dove, Streptopilia senegalensis, which is also common. We have a Goshawk, Accipiter tachiro in the neighbourhood which does eat Doves, and I suggested to Macharia that it was this that he had seen; but he knows the Goshawk and stuck to it that the predator was a Hornbill. Later the Hornbills seemed to settle down again and went on feeding peacefully if noisily on the Acokanthera fruit.

One wonders if some dietary imbalance could trigger off this apparently sudden desire for meat. It is of course well known that they do eat birds and insects. I have seen Black-and-White Casqued Hornbills, B. subcylindricus, trying to turn themselves into Flycatchers at a hatch of Termites.

'Corvinella'

SILVERY-CHEEKED HORNBILLS CONGREGATED IN LARGE NUMBERS

On Sunday morning, 14th May 1978, while shopping in the Westlands Shopping Centre, we observed three Silvery-cheeked Hornbills, Bycanistes brevis flying low and catching in mid-air, the green grasshoppers (Tettigoniidae: Homorocoryphus vicinus which were then invading the city. Leaving the area at 10.30 a.m. and driving around the Westlands traffic circle we observed seventeen on the ground under the thorn tree feeding on the grasshoppers that had been attracted by the street lights the night before.

Mr and Mrs Frank D. Durfey,
P.O. Box 30137, NAIROBI

THIKA AS A LOCALITY IN THE OVERLAP ZONE BETWEEN THE TWO RACES ON THE BLACK-FACED WAXBILL ESTRILDA ERYTHRONOTUS

In Williams (1967) the Black-faced Waxbill, Estrilda erythronotus is regarded as a separate species to the Black-cheeked Waxbill, E. charmosyna, since the two exist side by side in several localities in Kenya and Tanzania. The habitat of both is given as Acacia woodland and arid thornbush country and little distinction is given regarding the range of the two forms. In his bird lists for the various National Parks the same author lists both for Amboseli. The Black-cheeked Waxbill is otherwise only listed for Tsavo and Nakuru National

Parks.

Mackworth-Praed and Grant (1960) regarded the two forms as sub-species of the Black-faced Waxbill with E. e. charmosyna extending from Ethiopia and Somalia to northern Kenya and inhabiting rocky scrub country and E. e. delameri from southern Uganda, Kenya and Tanzania inhabiting trees and scrub.

In Hall and Moreau (1970) the distribution of specimens shows a clear line of demarkation from Zanzibar North to Gulu in Uganda, charmosyna to the East and delameri to the West except for one point around Namanga where both occur, thus agreeing with Williams' Amboseli list.

At Thika in 1976 I recorded E. erythronotus on only five occasions. On 8th February two charmosyna were seen in bush country on the Garissa Road where, in spite on numerous subsequent visits, the species has not since been recorded. The other four sightings were in scrub on the fringe of riverine forest along the Thika River as follows: The race of two or more on 29th March was not determined. One on 9th October was charmosyna and on 31st October was delameri whilst a pair on 11th November consisted of one of each form. The species was not recorded at all in 1977 or so far in 1978. Thus at Thika the species must be regarded as extremely uncommon and possibly only a non-breeding visitor. It is however an unobstrusive species and could be overlooked, especially in thick riverine scrub.

That both forms have occured together at Thika does at least show that Thika falls in the area of overlap between the two forms which presumably extends in a band more than 150km wide, and may be near the northern limit of delameri. The type locality for delameri is Athi River, about 38km South of Thika. It would be interesting to determine the full extent of this overlap zone and perhaps other observers will be prompted to send in their records so that this can be clearly established.

REFERENCES:

Hall, B.P. & Moreau, R.E. 1970. An Atlas of Speciation in African Passerine Birds. London: British Museum (Nat. Hist.)

Mackworth-Praed, C.W. & Grant, C.H.B. 1960. African Handbook of Birds Series 1 Vol. 2 Birds of eastern and north eastern Africa 2nd Edition. London : Longmans Green & Co.

Williams, J.G. 1967. A Field Guide to the National Parks of East Africa. London : Collins.

W.J. Plumb,
Thika High School,
Private Bag, THIKA,
Kenya

ADDITIONAL NOTES ON THE BLACK-FACED WAXBILL

Further to the note by W.J. Plumb, two forms of the Black-faced Waxbill were seen on a recent Society camp at Kajiado and Dr Pomeroy visited the Museum to check on specimens. The following notes may be useful to members. The National Museum collection has the following specimens :

1. Estrilda charmosyna, type locality Berdera, Juba River. Four typical Somali specimens with black cheeks, pale almost white behind ears and only feint trace of black under bill. Breast and belly pinkish with NO black on belly in males. Wings distinctly barred. White's Revised Check List of Buntings, Finches 1963 says charmosyna males have no black on face, throat and abdomen, however this must be a slip as they have black cheeks. Jackson described a race of charmosyna from Northern Uaso Nyiro, pallidior, as being paler, more grey on the abdomen and abdomen paler whitish pink. We have no specimens but one from Baringo could be this race, being pale and somewhat similar to the Somali specimens. Of particular interest, a single specimen from Burao in what was British Somaliland, decidedly darker than our other Somali specimens and the Baringo bird, which could almost be delameri, a race of erythronotus !

2. Bura on Tana River. We have a male which is very dark with crimson wash on flanks but with black belly and vent plus black extending from cheeks to chin. Wing barring indistinct. This is certainly delameri, however just South of the Tana at Yatta we have a pale bird without black on chin or belly which is not unlike charmosyna !

3. Athi River - Nairobi - Magadi area. Here are darker birds with black cheeks and chins (upper throat), breast and flanks washed with crimson but distinct black on belly to vent, these are delameri, for the type locality is Athi River. However, there are also two males without black on chin and belly but they are overall darker than charmosyna; all these are from Ololkisaili - Magadi. A Nairobi specimen is extremely dark bellied. Wing barring of these specimens is variable; the boldest being the Nairobi bird.

4. In Tanzania, particularly western Kibondo, Apis Rock, Tabora and Biharamulo have extremely dark birds with black extending to chin and throat, black bellied but flanks heavily suffused with dark crimson quite distinct from delameri but are not typical erythronotus from further South which have males with crimson belly and black vent. These are almost distinct enough to be another racial form.

Thus we have a complex picture with most authorities treating all as forms of erythronotus with the exception of Jackson and Williams who regard charmosyna as a full species. More work must be done on the group !

G.R. Cunningham van Someren, Bird Room, National Museum

LEG INJURY TO BIRDS OF VARIOUS SPECIES

Approximately two and a half years ago, a male Reichenow's Weaver, Ploceus baglafect reichenowi appeared at the bird feeder in our garden in Lavington, Nairobi, with an injured left leg. The leg seemed to have been broken or cut at the thigh and the tarsus hung loose and uncontrolled. Shortly thereafter it apparently fell off, and the bird was left with only the stump of the thigh which extended out behind him. Eventually he developed the ability to balance and perch on the good leg, and judging by his plumage, has remained in excellent condition, assisted possibly by the ready food supply. Throughout this period a female Reichenow's had appeared regularly with him.

Over this same period various other species have appeared at the feeder with similar injuries usually, but not always, the left leg being the one affected. These have included Holub's Golden Weaver, Ploceus xanthops, Red-billed Fire Finch Lagonosticta senegala, Dusky Turtle Dove, Streptopelia lugens, and a male Pin-tailed Whydah, Vidua macroura. All of these have been in the garden only for a few days and then not returned, presumably because they did not survive.

Despite all our efforts to do so, we are at a loss to discover the source of these leg injuries. We wonder if other EANHS Bulletin readers have made similar observations and possibly have come up with an explanation.

Mr and Mrs Frank D. Durfey,
P.O. Box 30137, NAIROBI

CO-OPERATIVE FEEDING OF YOUNG BY ADULT AND SUB-ADULT RED-KNOBBED COOTS

On 23rd November 1977 at a flooded vlei at Thika, Kenya, I observed two young chicks, two to three days old, of the Red-knobbed Coot, Fulica cristata being fed both by their parents and by two full grown immature birds. One chick repeatedly followed and was fed more often by an immature then by adults although all four old birds were seen to feed both chicks. I assumed that the two immatures were the previous brood of the adult Coots which remained in the vicinity of the nest during the incubation of the second clutch so that, on hatching, the new chicks became imprinted on these immatures as well as on their parents. I have seen no previous reference to this habit for the Red-knobbed Coot.

- - - - * - - - -

CO-OPERATIVE FEEDING OF YOUNG BY WHITE-CROWNED SHRIKES

On 18th December 1977 in an Acacia along a dried up river bed in the Mount Nyiru Forest, Kenya, I observed three full grown fledgling White-crowned Shrikes, Eurocephalus anguitimens. They had left the nest which was not seen and sat colsely together on a branch. They were repeatedly fed by four adult birds all of which sometimes visited the fledglings at one time.

I do not know whether this co-operative feeding of young has been previously observed in this species although it is well documented for the Helmet Shrikes, Prionops species.

Mr W.J. Plumb,
Thika High School,
Private Bag, THIKA, Kenya

UNUSUAL COLOURATION IN LAUGHING DOVE

In March this year a Laughing Dove, Streptopelia senegalensis of unusual colouration appeared at the bird feeder in our garden in Lavington, Nairobi, and has continued to appear frequently. The head, throat, nape, neck and breast are white with some pale buff blotches in the white area. There are also white blotches in the wing. Primaries and tail are normal colour. Eye ring is red with a black eye. After a recent absence of two weeks he returned and it was noted that the white feathers at the nape of the neck appear to be getting darker and changing to normal colour.

Mr and Mrs Frank D. Durfey,
P.O. Nox 30137, NAIROBI

WHITE-FRONTED BEE-EATER, A NESTING COLONY

I had often on my safaris noted a great number of White-fronted Bee-eaters, Merops bullockoides, in the Momella area of the Arusha National Park, Tanzania. From 14th - 16th March 1978, I stayed with a friend who has a 160ha farm in the Momella Enclave of the Park. He took me to see the nesting site of the Bee-eater in the banks of the Ngari Nanyuki River. We could not stay and I could not count the number of tunnels as a tremendous storm was approaching and we had to beat it back to the house. A considerable number of birds (at a guess, well over 100) flew out at our approach. The River was high and the tunnels only about 60cm above the water level. It appeared to us that they were in danger of flooding if the River rose much further.

Away from the nesting site I noticed a great number of immature birds.

Mr Eric Risley,
P.O. Box 24751,
NAIROBI

FIELD MEETINGS IN MAY

Both these field meetings were in the nature of experiments. There have been complaints that our meetings centre too much round birds, and also some members think that field meetings should be more serious and not merely picnics. So both these meetings were planned to give members interested in other things as well as birds something to get their teeth into. Our Committee would be very glad of comments and further suggestions.

On 14th May participants were shown a specimen of Euphorbia, told that it grew in the Rift Valley and were asked to find others of the same species. They were then led off down the Magadi road where they all scattered about and most were not seen again that day. No Euphorbia were brought in, but those participants that I met said that they had enjoyed the day, though they did not say whether searching for the Euphorbia had increased or diminished their enjoyment. The Rift Valley was looking its rare best, full of grass and flowers and dotted with pools at which butterflies and birds were drinking.

On 27th May a different plan was followed. Members were invited to the beautiful garden of Mr and Mrs J.B.C. Cameron at Tigoni, and their attention particularly directed towards the collection of indigenous Ferns. Then Mr Mike Gilbert of the Herbarium took a fairly simple Fern and showed us how we should key it out, using Agnew's Upland Kenya Wild Flowers, and other specimens from the collection to illustrate the various divergences. I do not know how many of us learnt how much, but I am certain that without such help it is extremely difficult for any but a dedicated and well-grounded botanist to learn to use the keys, and without them further progress is impossible. At least I am sure that all the participants enjoyed looking at the Ferns and the rest of the garden, and their attention called to things that they had not noticed before. We are all most grateful to Mr and Mrs Cameron and to Mike Gilbert for giving us this opportunity, and I repeat that our Committee would be very glad of comments and further suggestions.

Corvinella

SOCIETY LECTURE NOTES

On 18th May we were privileged to see a number of Mr Reynolds' wonderful bird slides. It is difficult to give any idea of the showing to members who were not there. A mere list of subjects - Flamingoes feeding, Squacco Heron feeding, nest of Bush Shrike, nest of Scrub-Robin etc. would convey nothing of their beauty. I remember in the old, more active, days thinking it foolish to sit in a dark stuffy room looking at pictures of things that I could see in their reality outside. But most of us see so little. How many saw the Lanner Falcon, Falco biarmicus photographed so that every detail was sharp and clear, that Mr Reynolds told us slept for two hours on the top of a post in Nairobi National Park after robbing a Black-shouldered Kite, Elanus caeruleus of its prey ? Mr Reynolds used this to illustrate piracy (or kleptoparasitism) as a method of feeding. He divided up his slides to show various aspects of bird life and behaviour, feeding, nesting and adaptations to a hot environment. He told us that he had selected the slides not because they were his best, but because they illustrated clearly the behaviour associated with these activities in various forms. 'To make up' his last slide was a lovely study of a Violet-backed Starling, Cinnyricinclus leucogaster doing nothing in particular. But to me all the pictures seemed superb, even one which he said was a poor photograph and was only included because he had had a chance of snapping a White-headed Plover, Vanellus albiceps in the act of wetting its breast feathers before returning to its nest. This of course was one of a series of slides illustrating adaptations to a hot environment.

I think for some of us this section was the most interesting of all, as the idea itself may be new to many. Even if we had noticed panting, sitting in the shade and opening the wings, shading the eggs instead of brooding them, or exposing the legs may be items of behaviour that we had not thought of. Some of us know that Sandgrouse, Pteroclididae, carry back water by wetting the feathers of breast and belly, but some did know that Plovers do it too. This section also included the charming photograph of Spotted Thicknee chicks, Burhinus capensis standing in the shade of their mother's tail, and of a family of Cape Wigeon, Anas capensis, the female and young sheltering under an overhanging rock, and the male in a photograph by himself, keeping cool by standing with his feet in the water.

I have only one criticism - this ought to have been three lectures, not one. Then we should have had time for questions and discussion, which all had to be abandoned as we crept away with head exhausted and tail numb. Worse still, we had not

time to look at each picture properly, as the speaker flashed them through at increasing speed as he caught sight of his watch or sensed the flagging concentration of his audience as the air in the hall was used up. Next time he shows slides (and may it be soon), members are advised to bring each a bottle of refreshment and a cushion and to settle down to enjoy themselves.

Corvinella

'Amboseli: a decade of change' was the title of a fascinating lecture given to the Society by Dr David Western on 12th June. The talk was prefaced by a salutary reminder about how our perspective of a given problem is influenced by our knowledge, or in many cases lack of knowledge, of the relevant facts. Ten years ago it was 'obvious' that Amboseli was being 'turned into' a dust bowl and that, equally obvious, the agents of this conversion were Masai cattle, tourist vehicles and tree destruction by elephants. At the same time there was fairly widespread belief in the existence of a corridor along which migratory ungulates 'commuted' between Amboseli and the Athi Plains. Dr Western's research showed that all the above ideas were fallacious to a greater or lesser extent and that management plans based on them would have been disastrous.

Most of us were surprised to hear that the familiar Amboseli dust-storms are no new phenomenon but have been going on for thousands of years during which there has been a steady transfer of the fine volcanic soil westwards by the prevailing winds. During this study one such storm was followed for some 320km into the Serengeti in the vicinity of the Gorr escarpment. Measurements showed that the amount of erosion resulting from animal trampling and cars was quite insignificant compared with 'natural' wind erosion. Soil analyses showed that much of the bare 'desert' areas is too saline to permit plant growth at all.

This essentially geological data was introduced with the help of striking aerial photographs of Mount Kilimanjaro and a satellite photo on infra-red film which records vegetation in red. These brought out the fact that the life-blood of Amboseli is water from Kilimanjaro which emerges as springs giving rise to swamps which are the only source of permanent water for many miles. The swamps thus serve as a dry season concentration area for grazing mammals which are unable to exploit pastures much more than 15km from a drinking place. Regular survey work revealed that the grazing ungulates using Amboseli have discreet populations which do not mix with others and that the migratory corridor to the Athi Plains was

non-existent.

Elephants were shown not to be the prime cause of the die-off of the Acacia woodlands. This was the result of exceptionally heavy rains raising a saline water table until it came into contact with the trees' roots. The roots were surrounded by a soil solution with a higher osmatic pressure than that in the root cells with the result that the roots lost water to the soil instead of vice versa, causing death by 'physiological drought'. Partly as a result of less available Acacia foliage the Elephants were forced into the swamps where they opened up the dense sedges permitting invasion of the swamp by more palatable grass species which were then available for other herbivores.

The Masai were also found to be exploiting the Amboseli ecosystem in the same manner as the migratory Wildebeest and Zebra, the main difference being that the Masai cannot break their herds up into really small ones in response to poor grazing conditions as do wild ungulates because there is not sufficient man-power for herding many small groups of cattle. One consequence of making Amboseli a National Park from which domestic stock is excluded is that it will be impossible for the Masai herds to ever build up again to a level capable of providing the sole support of a growing human population in the traditional pastoral manner. The Amboseli Masai are already changing their life-style, some even having become growers of cash crops such as onions.

Studies of tourists and their vehicles showed, as already noted, that habitat damage was more apparent than real. Effects on animals are also generally harmless except in the case of the Cheetah which may all too easily be forced away from young cubs. Large numbers of tourist vehicles all in sight of each other at the same time is aesthetically undesirable and certainly diminishes the attractiveness of a National Park, particularly for visitors with a real appreciation of what a place like Amboseli has to offer.

Dr Western's most interesting and well illustrated lecture provided much food for thought and we hope that the facts established by Dr Western and his colleagues will be wisely used in the formulation of conservation policy both at Amboseli and elsewhere in Kenya.

J.F.R.

We wish especially to thank Dr Western for getting up, quite literally, from his sick-bed, where he had been laid low by tick fever. To give such a fascinating lecture for over an hour in these circumstances was truely a wonderful effort. Ed.

LETTERS TO THE EDITOR

Dear Sir,

Rift Valley Swamps - a comment

I read with great interest Mr van Someren's article on the Rift Valley swamps, and in particular his comments on the caterpillars he found feeding on the fern Marselia. The caterpillar was however not the moth Prodenia litura 'sensu stricto', but, assuming its correct identity, it was Spodoptera littoralis.

Without going into lengthy details, the taxonomy of these two species has for a long time been very confusing. For many years S. littoralis was known as Prodenia litura, however it was realised by Viette (1963) that the two were in fact distinct species (they had been previously synonmised by Aurivillius in 1897).

One species, Spodoptera littoralis Boisduval has a pan African distribution, occuring also in part of Europe and western Asia, while the other, Spodoptera litura (Fabricius) has a predominantly Oriental distribution (Brown and Dewhurst 1975).

There is an area in western Asia where the two species are known to occur together, whether or not they hybridize is not known (Wiltshire 1977).

Mr van Someren's records of the food plant are extremely interesting. This insect is from the polyphagous section of the genus, and plants from forty families are known to be eaten by littoralis; this is, to my knowledge, the first record of a Pteridophyte having been attacked by this species, it is therefore a most welcome piece of new information.

REFERENCES :

The late BROWN, E.S. & Dewhurst, C.F. 1975. The Genus Spodoptera in Africa and the Near East. Bulletin of Entomological Research : 65: 221 - 262.

VIETTE, P. 1963. Le complexe de 'Prodenia litura (F)' dans le region Malagache. Bulletin Mensuel de la Societe Linneenne de Lyon. 32: 145 - 148.

WILTSHIRE, E.P. 1977. Middle East Lepidoptera, XXXVII: notes on Spodoptera litura (F.). Proceedings of the British Entomological and Natural History Society 1977: 92 - 96.

C.F. Dewhurst,
Armyworm Research Project.
Desert Locust Control
Organisation (for E.A.)
P.O. Box 30023, NAIROBI

REQUEST FOR INFORMATION

The writer is preparing a note on the distribution and status of Hinde's Babbler, Turdoides hindei and would appreciate any information observers can provide about this species. Recent information from Machakos, Kitui, Athi River and Donyo Sabuk, all recorded localities would be most welcome. Even negative reports from these areas by resident observers would be useful. Precise details of localities are not expected but a description of the habitat and an indication of numbers would be appreciated.

Also can observers in Chogoria, Meru areas tell me whether the species occurs in those areas ? There is a possible sight record from near Chogoria.

All letters will be acknowledged.

W.J. Plumb,
Thika High School,
Private Bag,
THIKA, Kenya

BOOKS FOR SALE

Mr Grant of Rongai is offering the following valuable books for sale through the Society. They are all in perfect condition, most with their dust covers. Cheques should be made out to the East Africa Natural History Society, and sent to the Treasurer, P.O. Box 44486, NAIROBI.

The books are as follows :

Meinertzhagen, R. (editor). Nicholl's Birds of Egypt 1930
2 volumes. PRICE KShs. 3,375.00

Bannerman, D.A. The Birds of Tropical West Africa 1930 - 1951
8 volumes. PRICE KShs. 5,700.00

Pitman, C.R.S. A Guide to the Snakes of Uganda 1938 (Ugamda Society edition) PRICE KShs. 1,270.00

COUNCIL FOR HUMAN ECOLOGY - KENYA

Members will be interested to know of the formation of the Council for Human Ecology, CHEK for short. This new organization seeks to promote understanding of the inter-relationships of mankind with the physical, biological, socia-cultural, and socia-economic components of the environment and

seeks to apply its findings to the development of local communities. It is undertaking projects involving aforestation, environmental education, appropriate technology, and village development. Society members who are interested in learning more about CHEK should contact William Mbote or Erica Mann at P.O. Box 20360, NAIROBI.

SOCIETY NOTES

Lecture Times in response to the questionnaire sent to Nairobi members with the last Bulletin, 54 replies were received. Of these, 2 wanted lectures at 5.15 p.m., 35 were happy with the present time of 5.30 p.m., 6 wanted 6 p.m., 5 wanted 7 p.m. and 6 wanted 8 p.m. As a result of this, lecture times will remain the same.

Upland Kenya Wild Flowers are still available to members at Shs. 150/- per copy. Available in the office at the National Museum, and at most lectures.

Faces of Kenya by David Keith Jones is on sale to members at Shs. 180/- per copy. Also in the office and at most lectures. A wonderful present to give friends leaving the country.

Medicinal Plants of East Africa by our Vice Chairman, Dr John Kokwaro; hard cover books still on sale at Shs 85/- each. Please apply in the office.

Informal Notes. Sets of 12 with envelopes - air mail weight (under 10g) are available to members at Shs. 10/- per set. Please ask the Secretary for some.

Car Stickers at Shs. 2/- each, and plenty in stock.

Journal part No 164 is enclosed for full members.

Journal reprints A new list of reprints has been prepared by Mrs Angwin. This will be sent out with the September/October Bulletin.

Posters to advertise the Society are available free of charge in the office. Members are requested to collect copies and display them.

Important notice to campers At a recent Executive Committee meeting it was agreed that non members attending Society trips would be requested to pay Shs. 20/- for a camp and Shs. 10/- for a day trip. Members bringing guests are requested to hand these fees to the trip leader. Thank you.

Ideas needed from you for day trips, camps and lectures. If you would like to visit a particular area, or know of a lecturer, please contact the Secretary or Mrs Campbell, P.O. Box 14469, NAIROBI.

NEW MEMBERS

The following new members have been elected to the Society:

Local Full Members

Dr Mary Antrobus, P.O. Box 48048, NAIROBI
Mr James H. Bartram, P.O. Box 40550, NAIROBI
Mr S. Bircher, P.O. Box 42196, NAIROBI
Mr Axel Böhm, P.O. KABETE, Kenya (c/o Vet. Lab.)
Mrs Aleida Cahusac, P.O. Box 24501, NAIROBI
Mr A.C. van Eijsbergen, Dept. of Crop Science, P.O. Box 30197, NAIROBI
Mrs Alexis Margaret Hunter, P.O. Box 45992, NAIROBI
Mr John Kerr, P.O. Box 244, NAIVASHA, Kenya
Mr C.V. Matihias, P.O. Box 11, KIAMBU, Kenya
Mrs Joan Measures, P.O. Box 30301, NAIROBI
Miss J.N. Moody, Loreto Convent Msongari, P.O. Box 30258, NAIROBI
Mr Sorensen, P.O. Box 46327, NAIROBI
Mr Anthony John Troughear, Educational Media Service, P.O. Box 30456, NAIROBI

Local Half Year Members

Mr M.A. Baker, P.O. Box 24825, KAREN, Nairobi
Mr and Mrs A.D. Gaymer, P.O. Box 40058, NAIROBI
Mr Geoffrey W Amywar Latim, P.O. Box 41983, NAIROBI
Miss Cecilia Muringo, c/o Daniel Kahati, Survey of Kenya, P.O. Box 30046, NAIROBI
Mrs Jill Nightingale, P.O. Box 30028, NAIROBI
Dr H.M. Seitz, WHO. IRTC, P.O. Box 30588, NAIROBI

Local Junior Members

Paresh Devani, P.O. Box 22049, NAIROBI
Dilip D. Doshi, P.O. Box 49783, NAIROBI
Phalgun Joshi, P.O. Box 40833, NAIROBI
Abdulrauf Karim, P.O. Box 41997, NAIROBI
Dinesh Shah, P.O. Box 42963, NAIROBI
Sarju L. Shah, P.O. Box 40351, NAIROBI
Smita Shah, P.O. Box 42817, NAIROBI

Change of Status to Life Membership

Dr L.T. Schwab, P.O. Box 1366, NAKURU, Kenya
Mr E.B. Evans, P.O. Box 996, MOGADISHU, Somalia

Overseas Life Member

Dr Rer Nat. Walter Thiede, Fliederstr 2, 4280 BORKEN/WESTF 1, Frankfurt, Germany

SOCIETY FUNCTIONS

Monday 10th July 1978 at the Museum Hall, Nairobi at 5.30 p.m. A programme on Whales. (please note change).

July 14th 15th 16th 1978 Weekend excursion to the Shomboli area, South of Magadi. THIS IS NOW FULL.

Sunday 13th August 1978 Day excursion to the Hell's Gate area, Naivasha. Leader, Dr John Gerhart. Please meet at 2 p.m. SHARP at the Hell's Gate turn-off, 14km from the Naivasha Highway along the South Lake Road, just before the carnation plantation. We will be mainly looking for birds. Bring a warm sweater/coat. For more information on this trip, please call Dr Gerhart at Nairobi 60069.

Monday 14th August 1978 at the Museum Hall, Nairobi at 5.30 p.m. Filmshow :'Flight for Survival' by kind permission of the World Wildlife Fund.

Monday 11th September 1978 at the Museum Hall, Nairobi at 5.30 p.m. Mr and Mrs P. Gerrard will give a lecture on the American Bald Eagle.

Sunday 24th September 1978 Day field excursion to the Lukenya area, South East of Athi River town. Leader Mr P. le Pelley. Meet at the National Museum at 8.30 a.m. SHARP and bring a picnic lunch and walking shoes.

Monday 9th October 1978 at the Museum Hall, Nairobi at 5.30 p.m. Mike Clifton will give an informal lecture on Butterflies.

First week end in December : Mrs Fleur Ng'weno and Dr John Gerhart will organise a bird census. Details later.

Wednesday morning bird walks continue. Please meet the leader, Mrs Fleur Ng'weno at the National Museum at 8.45 sharp. All are welcome.

MEMBERS ATTENDING SOCIETY FUNCTIONS ARE REQUESTED TO READ THE NOTICE ON PAGE 96 OF THIS BULLETIN. GUESTS MUST PAY THE FEE OF SHS. 20/- FOR A CAMP AND SHS. 10/- FOR A DAY TRIP. PLEASE GIVE THE LEADER OF THE TRIP THE MONEY. THANK YOU.

THE EAST AFRICA NATURAL HISTORY SOCIETY

Chairman: J. S. Karmali
Vice Chairman: Dr J. Kokwaro
Editor, Jl E. Africa nat. Hist. Soc. Nat. Mus.: Mrs J. Hayes
Secretary/Treasurer: Miss D. Angwin
Ass. Secretary/Treasurer: Mrs E. B. Angwin
Librarian: Dr J. Kokwaro
Executive Committee (in addition to the above): Miss P. M. Allen, G. C. Backhurst (*Ringing Organizer*), Mrs A. L. Campbell, M. P. Clifton (*Editor EANHS Bulletin*), Dr J. Gerhart, Dr J. M. Mutinga, Dr D. J. Pearson, J. F. Reynolds.
Co-opted Members: Mrs H. A. Britton (*Nest Record Scheme Organizer*), P. Davey, M. Gilbert, Dr A. Hill, J. Maikweki, J. Miskell, M. Mukoko, Mrs F. Ng'weno, D. A. Turner.
Journal Editorial Sub-Committee Mrs J. Hayes, Miss D. Angwin, Mrs V. Balcomb, M. P. Clifton, Dr D. J. Pearson, J. F. Reynolds, Dr A. Hill.
Ornithological Sub-Committee Dr D. J. Pearson, D. A. Turner, G. C. Backhurst, Mrs H. A. Britton, P.L. Britton, Dr A. W. Diamond, Dr J. Gerhart, B. S. Meadows, J. F. Reynolds, D. K. Richards, A. D. Forbes-Watson, C. Mann (London) Dr M. Carswell (Kampala), Dr K. Howell (Dar es Salaam).
Joint Library Sub-Committee (Society representatives) Dr J. Kokwaro, Mrs J. Hayes, M. P. Clifton.
Functions Sub-Committee Mrs A. L. Campbell, Mrs E. B. Angwin, M. Gilbert.

MEMBERSHIP

This offers you free entry to the National Museum, Nairobi; free lectures, films, slide shows or discussions every month in Nairobi; field trips and camps led by experienced guides; free use of the Joint Society-National Museum Library (postal borrowing is also possible); reciprocal arrangements with the Uganda Society's Library in the Uganda Museum, Kampala; family participation: wives and children of members may attend most Society functions; one copy of the *EANHS Bulletin* every two months; a copy of each *Journal* published during your period of membership; the Society controls the ringing of birds in East Africa and welcomes new ringers and runs an active Nest Record Scheme; activities such as plant mapping and game counting are undertaken on a group basis. Membership rates are given at the foot of this page.

JOURNAL

The Society publishes *The Journal of the East Africa Natural History Society and National Museum.* Each issue consists usually of one paper, however, sometimes two or more short papers may be combined to form one number. The aim of this method of presentation is to ensure prompt publication of scientific information; a title page is issued at the end of each year so that the year's papers may be bound together. Contributions, which should be typed in double spacing on one side of the paper, with wide margins, should be sent to the Secretary, Box 44486, Nairobi, Kenya. Authors receive twenty-five reprints of their article free, provided that these are ordered at the time the proofs are returned.

E.A.N.H.S. BULLETIN

This is a duplicated magazine issued six times a year, which exists for the rapid publication of short notes, articles, letters and reviews. Contributions, which may be written in clear handwriting or typed, should be sent to The Editor (*EANHS Bulletin*), Box 44486, Nairobi, Kenya. Line drawings will be considered if they add to the value of the article. Photographs cannot be published.

SCOPUS

The Ornithological Sub Committee publishes this quarterly bird magazine. Cost: EANHS members KShs. 50/- p.a., non-EANHS members KShs. 75/- p.a. All correspondence to D. A. Turner, Box 48019, Nairobi, Kenya.

MEMBERSHIP SUBSCRIPTION RATES

Life	One payment: Kshs. 750/-
Institutional (schools, libraries) .	annual payment: Kshs. 50/-
Full Local	annual payment: Kshs. 50/-
Overseas	" " Kshs. 70/-
Junior (full-time student, no *Journal* supplied) . . .	annual payment: Kshs. 10/-

Subscriptions are due 1st January. From 1st July you may join for Kshs. 35/- and receive publications from that date. Application forms for membership are obtainable from the Secretary, Box 44486, Nairobi.

QH
1
E135
SI
NH

EANHS

BULLETIN

SMITHSONIAN
LIBRARIES

A publication of the East Africa Natural History Society, Box 44486, Nairobi, Kenya. Price 4 shillings

NOTES FOR CONTRIBUTORS

Members of the Society (and non-members) are asked to follow these simple instructions when writing articles or letters for submission to the *Bulletin*. The *Bulletin* is presented six times a year in a duplicated format: the paper size is 20.5×23 cm (10×8 inches), line drawings can be reproduced but the area should not be more than 17.5×23 cm. Lettering on figures should preferably be in 'Letraset', neatly done in Indian ink or left blank: if the last method is followed, the lettering should be indicated on an overlaying sheet and should *not* be done on the figure. Figures should be prepared on good quality white writing paper and not on Bristol Board or other thick material. Whenever plants or animals are mentioned the scientific name should also be given but not in parenthesis. Trinomials should not be used unless there is good reason to do so. Author's names of species are not required.

Contributions may be typed (preferably) or written clearly and should be sent to: M. P. Clifton, Box 44486, Nairobi, Kenya. Receipt of contributions will be acknowledged.

CONTENTS

A Visit to Lake Solai 100
Behaviour of the Grey-headed Social Weaver 102
Sparrows at Bushwhackers 105
Marabous Breeding at Kiboko - Kenya 106
Sighting of Mackinder's Eagle Owl 107
Results of Three Game Counts at Lake Nakuru National Park 108
Brown-veined White Butterflies Impaled on Grass 109
New Butterfly Foodplant Records ? 111
Records Section 111
Letters to the Editor 112
Book Review: A Guide to Common Reef Fishes of the Western Indian Ocean 112
Society Films and Camp 114
Request for information 118
Society Notes 118
New Members 119
Society Functions 120

A VISIT TO LAKE SOLAI

Lake Solai is a lake only intermittently. It lies 45km North of Nakuru, right under the eastern wall of the Rift. A good all-weather road reaches to within 10km, after which a rough track is followed, quite passable when dry.

From information gathered locally, this shallow basin, measuring 3km by 2km, started to fill again with the heavy rain in March 1977, since when it has continued to rise.

The land surrounding it is private, and the individual members of the Tugen Co-Operative Farm, whom we met, were most welcoming and helpful when we requested permission to go on to their land to watch the birds. This farm is situated at the South end of the lake, which is the most attractive, and the most accessible. One's transport is left at the end of a side road, described euphemistically by our guide as 'si safi sana', the road differs little from the bush all round ! About 500m remain to be done on foot, and one is guided by the calling of the Gulls.

The South end of the lake is remarkably clear of tall reed, and a wide, shallow bay of blue water, interspersed with clumps of low, bright green vegetation meets the eye as one emerges from the Acacia bush. Some 2 - 300m of flat, damp land covered with spikey nut grass, Cyperus sp. separates the water from the Acacia bushland. Further back still is the dense bush common to these parts. Every area has its own fauna and flora, and in such abundance, sufficient to satisfy the most avid naturalist. No big game animals remain, I understand.

In the course of three morning visits, 94 different birds were recorded. It was reminiscent of Lake Naivasha in the early sixties. Biting flies were a moderate nuisance during these visits in June.

Whilst the evocative calling of the Gulls guided us as we threaded our way through the bush getting to the lake, we were mystified by prolonged rushing sounds, building up to a crescendo, and then dying away rapidly. During an interval for coffee, this was repeated - and 25 Spur-wing Geese, Plectopterus gambensis parachuted out of the blue sky, spilling the air out of their huge wings, and came to rest beside some 15 Knob-billed Geese, Sarkidiornis melanota. Red-billed Duck, Anas erythrorhynchos preened nearby, and further over stood a group of 15 White-faced Tree Duck, Dendrocygna viduata. As we watched, a pair of Spoonbill, Platalea alba winged their way low over the marsh with rapid wing beats, settled, and started sweeping the shallow water for food, but soon emerged to begin

preening, in the course of which they assumed splendid heraldic poses, with wings outstretched.

One could go on and on, speaking of Egyptian Geese, Alopochen aegyptica, Crowned Cranes, Balearica regulorum, Jacana, Actophilornis africanus and Purple Gallinule, Porphyrio porphyrio with many, many others crowding this water's edge. Further out, Coot, Fulica cristata splattered and called in the company of Moorhen, Gallinula chloropus, Little Grebe, Podiceps ruficollis and African Pochard, Netta erythrophthalma diving for their food. There were not, in the course of our visits, any large number of birds on the open water, nor, of course, were any migrants visible at this time of year. We were too far from the water's edge to see and identify any of the smaller wading birds.

Overhead, White winged Black Tern, Sterna leucoptera circled and dived, and frequently extended their circling to come over our heads as we searched the Acacia woodland for birds. The Grey-headed Gull, Larus cirrocephalus was identified as the one whose calls led us through the bush. Only once did we hear the Fish Eagle, Haliaetus vocifer call, presumably the absence of fish from this intermittent lake discourages them from visiting much.

The spiny Cyperus grass held many Glossy Ibis, Plegadis falcinellus widely distributed, as they probed the soft, saline mud for food. Their dark chocolate brown bodies contrasted sharply with the pure white of the Yellow-billed, Egretta intermedia and Little Egrets, E. grazetta, and bunched together on a slight rise was a flock of Buff-backed Herons, Ardeola ibis. Blacksmith Plovers, Vanellus armatus, four or five pairs, kept watch on us, in company with Richard's Pipit, Anthus novaeseelandiae, these being the only occupants of the much shorter Sporobolus grassland fringing the Cyperus marsh.

The young Acacia woodland delighted us, the pale green feathery foliage being sufficiently open to allow viewing of birds even when partly screened. An immature Didric Cuckoo hen, Chrysococcyx caprius had sunbathed in front of us earlier on, and later we were allowed to approach sufficiently close to an adult male to photograph him as he fed from smaller Acacia trees on the outside of the woodland. Then, in full sunlight, and backed by darker green foliage, a Silver Bird, Empidornis semipartitus posed for us, before most thoroughly tenderising a large caterpillar by both beating it on a branch and nibbling it with its bill. A small flock of Straight-crested Helmet Shrikes, Prionops plumata fluttered through the trees, ignoring both ourselves and the group of Tugen who were repairing the fencing. Paradise Flycatchers, Terpsiphone viridis

and Violet-backed Starlings, Cinnyricinclus leucogaster were everywhere, whilst continuously on the move through the trees were pairs of Red-faced Crombecs, Sylvietta whytii. Being rather late in the season (end of June) we saw only the Black-headed Oriole, Oriolus larvatus, the Red-faced Crombec and a pair of Superb Starlings, Spreo superbus, feeding fully fledged young. There were the immature birds of many species seen on the wing.

Far across the lake to the West, and right under Zakal Hill, could be seen a line of inundated Acacia trees, a group of which were leafless and clearly much in use. Birds coming and going the whole time, so we resolved to investigate. Three days later, in company with Mr Ian Marshall, we waded through the shallow swampy southernmost tip of the lake and walked round to a point under Zakal Hill from where this group of trees was clearly visible, some 300m from the shore. To our delight, we were able to satisfy ourselves that certainly Grey Heron, Ardea cinerea, Long-tailed Cormorant, Phalacrocorax africanus and Spoonbill were nesting there, and possible others also. Attempts to wade out to the trees were foiled by the depth of water and dense, floating mats of the grass, Digitalia nodosa.

On this visit with Mr Marshall the numbers of birds feeding in the bay were ten or more times those seen on our earlier visit. Our thanks to Mr Marshall for helping with bird identification and naming the vegetation.

On our way to the lake we had seen the Pigmy Kingfisher, Ceyx picta fly from a hole in the high water-excavated bank and, as we left, three adult D'Arnaud's Barbets, Trachyphonus darnaudii waited patiently on the fence, each with food in their bills, until we passed. Is it pure coincidence that they so frequently are found nesting just within millimetres of the tracks of cars on bush roads ?

This is a wetland infinitely worth visiting, and well within range. It would be interesting to read more authorative accounts of the area.

Dr and Mrs G.C. Irvine, Chogoria Hospital, P.O. Box 5035,
CHOGORIA, via Meru, Kenya

BEHAVIOUR OF THE GREY-HEADED SOCIAL WEAVER

The breeding behaviour and social organization of the Grey-headed Social Weaver, Pseudonigrita arnaudi have not before been observed with colour-ringed individuals. This species nests gregariously in Acacia trees in dry savanna, and has a high degree of social organization. We observed the

Grey-headed Social Weaver from April to July 1978, mainly at the National Prehistoric Site at Olorgesailie and also at the Amboseli National Park.

With mist nets or a drop trap we captured over 50 Social Weavers at Olorgesailie. Each bird was given two colour rings on each leg with distinctive combinations for each individual, using the same combination on each leg for rapid identification. Some birds carried a numbered aluminum ring of the National Museum on one leg and a white ring on the other in the same position, in addition to another coloured ring on each leg. The tail tips of some birds were also painted with one or two colours.

These social little birds sleep in their nests, often with more than two birds to a nest, and reside in the same tree the year round. Except when the birds are breeding, each nest has two entrances opening downward. Nests may be built at any time during the year, but there is a spurt of activity after the rains stop, when freshly dried and strong grass stems are available. The needle grass, Aristida adscensionis was mainly used at Olorgesailie. The nests are thatched rather than woven. Nest building is often communal with more than two birds helping to build the same nest.

We were especially interested in the social organization of the Grey-headed Social Weaver. Each colony consists of one or more different groups in the same tree, these are probably family groups. Each group contained two to ten birds, occupied a definite place in the tree, and owned from two to eight nests. The group defends the vicinity of its nests or territory from intrusion by strangers. Birds from neighbouring families are generally tolerated but do not often intrude. Sometimes birds will chase strangers from the territory of their neighbours. When a predator visits the colony tree, all the Social Weavers may gather near to 'mob' it and ignore territorial boundaries.

In the display advertising territory, the body is held about horizontal with head and tail up, the drooped and half-opened wings are vibrated rapidly and the bird may utter a fast series of brief notes. When feeding on the ground the birds have a definite hierarchy or peck-order. However, aggression is rare or absent between members of a pair or family group. Social Weavers from other groups, and especially those from other colonies are most likely to be attacked. Fights with strangers are not uncommon, especially during the breeding season.

The birds seem to feed only on the ground and may be

seen foraging in flocks off and on throughout the day. They may forage in the fields well away from the colony tree, but can be held close to the home site by artificial feeding with grain. However, in the evening, between 4.30 and 6.00 p.m., they generally go out to forage to at least 150 metres from the colony tree. A special contact call, a sreep of moderate pitch and intensity, given especially during flight helps to keep the flock together. There are two small pools for birds at Olorgesailie, where the Social Weavers were seen drinking at intervals from early morning to dusk.

Like most other Weavers, the Grey-headed Social Weaver breeds during the rains. The sexes appear identical and pair formation is an inconspicuous affair. One male built two nests largely by himself, and was then joined by another adult, presumably a female, and then only this pair worked on these two nests. Another pair spent much time close together during the courtship phase and often went off in the field together where they probably copulated. The male persistently followed the female. In the courtship display he would turn his back on her with body erect and tail held down, rapidly vibrating his partly opened wings. Copulation is rarely observed in this species, and was seen only twice.

One of the two entrances to the nest is closed before the two or three eggs of the clutch are laid. Incubation is by the pair which take turns sitting on the eggs which hatch in about 14 days. The nestlings spend about 20 days in the nest before leaving, and are fed communally by all the adults of the group as well as by immature birds (recognizable by a grey-brown crown) from previous broods. They are fed on insects and late in nesting life on grass seeds as well. The second hole in the nest is opened just before or right after the young leave the nest. The fledged young may be fed by only one of the adults, or by two or three of them.

Being a small (12.5cm long) bird, the Grey-headed Social Weaver has a host of enemies. When alarmed it may move into the dense upper canopy of the colony tree, which is often an Umbrella Thorn, Acacia tortilis, or fly off to nearby trees or bushes with dense foliage. The alarm call, a high pitched sharp cheep, is given to all sorts of enemies, including hawks, owls, hornbills, a mongoose, jackal or dog, or to any large bird or person disturbing the nests. A bird will often remain in the nest with its eggs or small nestlings until a finger is actually inserted into the entrance before suddenly flying out. We saw a Harrier Hawk, Gymnogenys typicus capture a Social Weaver just as the Weaver left the nest entrance. Sometimes eggs disappear from nests without trace. Herpetologists tell us that Weaver colonies are good places to look for egg-eating

snakes, Dasypeltis, but we saw none. Frequently, when nestlings disappear, a hole is found torn in the roof of the nest, possible the work of a Gabar Goshawk, Melierax gabar.

Any sudden movement may alarm the Social Weavers, but movement is not necessary and a motionless stuffed owl in the nest tree induces intense 'mobbing', the birds clustering close and fluttering about the owl giving their alarm cries. A rubber latex model of a mamba induced similar 'mobbing' when placed in the tree near the nest, but curiously enough the same snake model was virtually ignored when placed on the ground near the tree, and the birds fed on grain near the model, even perching on its coils.

There may be several advantages to gregarious breeding by the Grey-headed Social Weaver. Nesting in groups is made possible by the use of communal feeding grounds, and makes fuller use of limited nesting sites, such as Acacia trees of adequate size situated near sheltering bushes and trees. Communal nest building helps to make available new strong nests more quickly when needed. Communal feeding of the young helps to nourish them more adequately, and compensates for prolonged periods of food deprivation caused by predator harassment. There is a possibility that social stimulation helps a group to breed once it has attained a minimal number of birds. In April 1978, we found a somewhat smaller percentage of breeding nests in colonies with fewer than ten nests than in larger ones.

We are grateful to the Office of the President for permission to do the research in Kenya, and to the Director and personnel of the National Museums of Kenya, Nairobi, for their aid and support, especially to G.R. Cunningham van Someren. We thank D.A. Turner and S.A. Altmann for their help. The United States National Science Foundation financed the project.

Nicholas E. Collias and Elsie C. Collias, Department of Biology, University of California, Los Angeles, California 90024, USA

SPARROWS AT BUSHWHACKERS

The behaviour and distribution of common birds often raises puzzling questions, and more so because we may not have noted it for some time. It is always easier to date the first Swallow than the last. One such question that has faced me recently concerns the Sparrows, Passer griseus at Bushwhackers.

The birds are fed regularly there and as far as I know the type of food and the time of day have not changed for many years. One of the most numerous benificiaries used to be the

Parrot-billed Sparrow, Passer griseus gongonensis which crowded the tables until there seemed to be no room for a single one more. I have an undated note of this in 1976 and remember feeling snobbishly that I preferred the Bronze Mannikins, Lonchura cucullata that similarly thronged my own bird tables and still do. But when I visited Bushwhackers in July this year, there were no Sparrows on the tables. They had not deserted the neighbourhood and could be seen on the paths round the camp, but none came to the bird tables. The obvious guess is that the rain has provided them with a plentiful source of food elsewhere out of range of attack by other users of the tables. For they are a wary and suspicious race, and I have a note that they seem seldom to be caught in nets. I have asked Mrs Stanton to keep a sharp lookout for them.

As Bushwhackers is frequently mentioned in the Museum's Ornithological Newsletter as well as in this Bulletin, perhaps new members might like to know that this is a small self-service camp run by a member of the Society on the banks of the Athi River near Kibwezi, and makes an excellent stopping place (for more than one night surely) on the way to or from Mombasa. Compared with the new self-service Lodges, some people might find it primitive, but it provides everything that the traveller needs and you have to take only your food. It has the advantage of being very inexpensive and a good place for children who enjoy scrambling on the rocks in the riverbed. It is also a good centre from which to visit Mutomo Plant Sanctuary, Kibwezi Forest and the Tsavo National Parks. Further details can be obtained from the proprietor, Mrs H.R. Stanton, Bushwhackers. P.O. Box 33, Kibwezi, or from the present writer.

Miss P.M. Allen, P.O. Box 14166, NAIROBI

MARABOUS BREEDING AT KIBOKO - KENYA

A breeding colony of Marabou Storks, Leptoptilos crumeniferus has established itself at Hunter's Lodge, Kiboko.

On 12th August 1978 I visited the Lodge and was able to make the following observations. Two nesting sites have been chosen; one a single nest situated in an Acacia sp. close to the reception entrance which appeared to contain two semi-fledged young. The second site lies some 150m behind the Lodge in a grove of the same Acacia species, a total of 17 nests were counted and all appeared to contain either a single chick or pair of young, with the exception of one nest on which an adult seemed to be incubating. The young varied in size from small partly fledged chicks to one bird which appeared nearly ready to fly. All nests were 15m or more off the ground and observations were made with binoculars.

Lodge staff members informed me that the Marabous bred at the main site for the first time in April 1977 when about 10 nests were built, the young are said to have flown in September. After their dispersal the nests apparently were knocked down, although whether intentionally by the birds or due to the heavy rain and stormy weather last year is not clear.

The Storks are attracted to the Lodge by gleanings recovered from a nearby refuse pit. They are very tame and allow undisturbed approach and observation as they come and go feeding and sheltering the nestlings.

A.L. Archer, P.O. Box 41822, NAIROBI

SIGHTING OF MACKINDER'S EAGLE OWL

While staying at Klarwill's Hut, 4,175m (13,700') in the Teleki Valley of Mount Kenya on 4th August 1978, I was out walking around 5 p.m. when I heard a Rock Hyrax, Procavia johnstoni giving alarm calls. Looking in the direction of its fixed stare, I saw an obvious Eagle Owl, Bubo sp. sitting in a small alcove in the boulders of the valley, about 9.5m away above the floor of the valley and exactly midway between Karlwill's Hut and the porter's shelter just up-valley.

Although this could really only be Mackinder's Eagle Owl, Bubo capensis mackinderi, I wasn't carrying binoculars and had to make sure by slow stalking, hoping to approach closely enough to see the eye colour.

When I was 4.5m away from the bird, a Rock Hyrax walked past me, headed straight for the Owl and ultimately stuck its nose in the Owl's face and sniffed at it. The Owl half-opened its wings and hissed at the Hyrax which, although it retreated, was obviously not too worried by the bird.

I continued to crawl closer until the camera registered 2.5m. At this range the bird seemed completely unconcerned by my presence, and I was easily able to see the orange-red eyes in the failing light; I have quite adequate photos of the bird (1/30th, f1.4, 50ASA, 50mm lens) and of the Hyrax moving away from it after the threat displays.

I withdrew without flushing it, and it remained sitting in the nook until 6.55 p.m., when it flew to a prominent boulder perched on the otherwise featureless floor of the valley. I could not find it near the rocky alcove when descending the mountain three days later.

A.D. Lewis, Department of Geology, P.O. Box 30197, NAIROBI

RESULTS OF THREE GAME COUNTS AT LAKE NAKURU NATIONAL PARK

With a total area of 201 km^2, of which 44 km^2 is lake surface, Lake Nakuru National Park is one of the smallest National Parks in Kenya. It attracts ornithologists from all over the world, because 495 species of birds have been counted here (compared to 725 species in all of North America). The fact that the Park also harbours an abundance of mammals is less well known. Nowhere else in the world have Waterbuck been recorded in such a high population density.

In the course of a two-year study of the Waterbuck, monthly counts of the large mammals are taken to get an idea of the trends in population growth. For the purpose of these game counts, the Park has been split into 12 areas. Every second Sunday of the month at 6.30 a.m. the counting groups start to move on a fixed course through their area. Whenever they see a larger mammal, they note the species, sex, age (adult, subadult or juvenile), and the distance of the sighting from the starting point on a standard data sheet. On average it takes a counting group $2\frac{1}{2}$ hours to complete their area. Two of the twelve areas are done on foot.

The following table gives the numbers counted on the first three of these game counts (May to July), the average of these counts and, for comparison, numbers recorded in game counts in 1970 - 1971, when the land area of the Park was only 29 km^2. The last column is my guess of the total or minimum number of each of these species. This guess is based on the relative conspicuousness of each species and its activity pattern (see below), reports from fellow scientists and amateur biologists, and eight months of daily work in the Park.

Waterbuck are the dominant species. Their numbers have increased to one and a half times the 1971 population. This increase could be due to an addition of animals together with the new area and to growth of the existing population. As the land area of the Park has increased five-fold, the actual Waterbuck density has decreased. Most of the new area is habitat favourable to Waterbuck and one might therefore speculate that their numbers will continue to increase in the future. Impala, the second most common species, also show an increase in numbers. So do Buffalo, Warthog, and Silver-backed Jackal. Zebra, Rothschild's Giraffe, Eland and Grant's Gazelle were not present in the Park in 1971. Only one of the five Eland seems to be a female. Clearly, this is not enough to uphold or even increase the population. It would be a commendable action indeed to bring in a few more Eland, maybe from nearby GilGil area or Delamere Estate. A decline in numbers is apparent for Bohor Reedbuck, possibly also for Bushbuck and Steinbok. The reasons for this are at present unclear. Some species

are obviously under-represented in this count. Dikdik and Vervet Monkey, for instance, are more active later in the day and not early in the morning when the counts are done. Entirely missing are, of course, the nocturnal species such as Aardvark, Spring Hare, Genet, Civet and Porcupine, the first three being not at all uncommon in the Park.

SPECIES	MAY	JUNE	JULY	AV. NO	AV. 1970/ 1971	ESTIM. TOTAL
Waterbuck	1284	1403	1386	1358	883	2000
Impala	932	983	819	911	255	1500
Thomson's Gazelle	291	317	224	277	252	600
Bohor Reedbuck	22	46	38	35	248	+ 100
Baboon	30	99	8	46	51	+ 200
Buffalo	116	80	74	90	27	+ 250
Vervet Monkey	6	8	39	18	25	+ 150
Bushbuck	8	4	7	6	22	+ 50
Dikdik	7	12	7	9	21	+ 150
Steinbok	-	4	2	3	12	+ 50
Hippo	5	3	2	3	12	+ 7
Mountain Reedbuck	3	1	6	3	3	+ 30
Warthog	2	10	47	20	3	+ 100
Colobus Monkey	11	10	-	7	3	+ 15
Leopard	1	1	-	1	1	+ 8
Jackal	13	10	14	12	-	+ 50
Hyaena	1	-	-	-	-	+ 3
Giraffe	17	-	1	6	-	18
Rock Hyrax	17	12	5	11	-	+ 80
Zebra	5	10	1	5	-	+ 25
Eland	1	5	-	2	-	5
Grant's Gazelle	10	19	10	13	-	+ 20
Bushpig	-	-	3	1	-	+ 10
Klipspringer	-	-	1	-	-	+ 2

The sign '+' means 'more than'.

Dr. Peter Wirtz, P.O. Box 33, NAKURU, Kenya

BROWN-VEINED WHITE BUTTERFLIES IMPALED ON GRASS

My wife and I travelled by car from Nairobi to Mt. Kenya Safari Club on Saturday, 4th February 1978, and during the journey noticed a large number of Brown-veined White butterflies Anaphaeois aurota, apparently migrating from West to East. We have been on safari to Kenya on a number of occasions previously, but never before seen these butterflies in such large quantities.

On Tuesday, 7th February we made a safari up Mt. Kenya

with Mr Peter de Mello of P.O. Box 70, Nanyuki. The journey was made by vehicle up the Sirimon track to 2743m (9000').

We left the vehicle and started our climb up the mountain and notice large quantities of Brown-veined Whites migrating in the same direction as previously, i.e. from the direction of Nanyuki, up and over the mountain in an easterly direction. From around 3515m (11,500') to around 3962m (13,000'), I noticed quite a number of these butterflies apparently dead on the ground and picked one up to examine it. To my surprise I found that the butterfly was impaled on a sharp piece of grass which protruded into the middle of the body, as can be seen on the photographs I sent to Mr Cunningham van Someren at the National Museum.

Being of a non-scientific mind I assumed that the butterflies had been impaled by some variety of bird in a similar manner to the Fiscal Shrike impaling insects on thorn bushes. I really should have studied the area in more detail to find how many of these butterflies per square metre were impaled on the grasses and how many just lying dead on the ground. I did however particularly notice that the impaled ones were always impaled through the centre of the body and not through the wings.

Being inquisitive, on my return to the United Kingdom I wrote to Mr Cunningham van Someren asking him to identify the variety of bird which impaled these butterflies. I was surprised to receive his reply saying that I had set the members of staff of the Museum a real puzzle as they had not encountered this phenomenon previously and doubted whether it was the work of birds. Mr van Someren's guess was that the butterflies might have been caught in a snow storm, settled, became frozen and as the snow melted the grass stems might penetrate the body or wings, for the grass species high up on Mt. Kenya are fairly stiff and brittle.

I personally doubt whether this suggestion is the answer as there had been no snow storms during the few days prior to my visit to Mt. Kenya and no where could I find butterflies which had been impaled through their wings. It seems pretty obvious that if this suggestion was the answer, then by far the largest proportion of the butterflies which had settled on the ground would have had their wings penetrated by grasses as well as their bodies, and as the grasses tend to grow fairly densely in some cases a number of grass stems would have passed through the butterflies wings and body.

This phenomenon has taught me to be much more scientific in my approach to questions of nature in future and not to take situations too much for granted.

If any of your readers should have a solution to this puzzle, it would be appreciated if they would write to Mr Cunningham van Someren, head of Section of Ornithology, Division of Natural Sciences, National Museums of Kenya.

Kenneth V. Cooper, Abbey Wood House, Newstead Abbey Park, LINBY, Nottingham NG15 8GD, U.K.

NEW BUTTERFLY FOODPLANT RECORDS ?

During the August dry season of 1977 I reared a number of larvae of various sorts found in Tsavo National Park (East) near the Voi Gate, and also in an area just outside the Park where the pipeline roads cross the Voi River Valley. Three species of Pierid were reared from four species of bushy shrubs, family Capparidaceae ;

Pinacopteryx eriphia Godart
ex - Boscia coriacea Pax
Colotis ione Godart
ex - Thylachium thomasii Gilg
Anaphaeois aurota Fabricius
ex - B. coriacea Pax and Maerua sp. nr. crassifolia Forsk.

In J.G. Williams' Butterflies of Africa, the following records are given; P. eriphia on Capparis oleoides DC and Maerua triphylla A. Rich., Colotis ione on 'various' capparids and B. aurota on Capparis and Boscia.

It appears therefore that most species of Capparidaceae may be acceptable to a large number of species of dryland Pierids.

I thank the Kenya Government and in particular Mr J. Ayieko for permission to work within the Tsavo East National Park.

Donald L.J. Quicke, Department of Zoology, University of Nottingham, NOTTINGHAM, U.K.

RECORDS SECTION

Lion, Panthera leo heard each night on the forest/moorland boundary at 3300m on the Sirimon Track, Mount Kenya on 12th, 13th, 14th and 15th August 1978. Stated by J.G. Williams in his 'Field Guide to the National Parks of East Africa' as 'Reputed to occur at times, but no recent records'.

J.F. Reynolds, P.O. Box 40584, NAIROBI

LETTERS TO THE EDITOR

Dear Sir,

The use of pseudonyms

I was astonished to see a note on the 'Carnivorous Habits of Hornbills' in the July/August Bulletin published over a psuedonym. Although the use of pseudonyms is in order for notes dealing with Society affairs, I feel strongly that all observations on natural history should be published over the observer's name and address as is customary in scientific publications.

J.F. Reynolds, Jamhuri High School, P.O. Box 40584, NAIROBI

(We apologise for the use of a pseudonym in the above-mentioned article. It was written by Miss P.M. Allen, P.O. Box 14166, Nairobi. Ed)

\- - * - -

Dear Sir,

I refer to the article published in the July/August Bulletin by 'Corvinella', Carnivorous Habits of Hornbills. The writer of this article may be interested to know that the Kikuyu word 'Magogo' is the name they give to the Pied Crow, Corvus alba, and not to the Silver-cheeked Hornbill. It would seem to be more likely that a Crow would eat a Dove. I would be interested to know the Kikyuy name for the Silvery-cheeked Hornbill. Can any member tell me ?

Mr I.W. Hardy, P.O. Box 449, NYERI, Kenya

BOOK REVIEW

A Guide to Common Reef Fishes of the Western Indian Ocean by K. Bock, photographs by J. Mackinnon and I. Took. Published by Macmillan. 122 pages; 16 colour plates (including 60 underwater photographs); 7 black and white figures and 66 pen and ink drawings in text; index; 2 maps of major ocean currents.

The first five chapters consist of short introductory articles on various topics such as the nature of the water, corals, reefs and reef habitats, external physical features and colours of fishes, behaviour etc. The last two chapters are on hazards of the reef, and a contribution by Ian Took on underwater photography.

Chapter six is by far the longest and describes 120 species which are most commonly seen while goggling. All these

are illustrated either by colour photographs, paintings or black and white drawings, and a further 50 allied species are dealt with briefly and usually not illustrated. The descriptions of individual species usually include useful and interesting information on the habitat, food and behaviour. There is no key, but it is easy to find your way around by flicking through the book and looking at the illustrations. I was a little suprised to find the cartilaginous fishes (only Dasyatidae is dealt with) at the end, rather than at the begining as is usual. By and large the coverage is very well balanced, and my only criticism is that the entire large gobioid and blennoid faunas are skipped over in only three pages. However, these are not conspicuous 'goggling fish' and most are very difficult to identify; being more or less equivalent to the bird watchers' 'little brown jobs'.

The colour plates 1 to 15 deserve special mention :- these consist of underwater colour photographs of very high quality. The photographs are small, measuring 8 x 5 cm, so as to get four per plate (60 photographs in all), but the definition is excellent with all the fish very easily recognisable. Nearly all are clearly in habitat, and my feeling is that, for those who have yet to don a pair of goggles and immerse themselves in the reef channels, these illustrations will prove a strong incentive to do so.

Reading through the book I gained the impression that it is written mainly for the visitor or tourist, an impression finally confirmed on p. 104 where we are told that "Two or more hours is a long period to be exposed to the almost vertical rays of the equatorial sun; unless common sense is used severe sunburn inevitably results." in blatant disregard of the fact that the great majority of people of the Western Indian Ocean are blessed with adequate skin pigmentation.

I should, perhaps, make a brief comparison with another relatively new book, A Field Guide to the Coral Reef Fishes of the Indian and West Pacific Oceans by R.H. Carcasson (reviewed in the March/April 1978 Bulletin). The two are very different: Carcasson's is an almost comprehensive identification guide compiled by a systematic zoologist, whereas Bock's is a very readable introduction to fish watching.

The publishers are to be congratulated on keeping the price at a moderate level. It is well worth Shs 40/-, and at this price you can feel free to take it out on the reef, where it will be most useful, knowing that your day will not be ruined should it get claimed by the sea.

A. D-M

Whales, Dolphins and Man

The Society's July lecture meeting was a BBC Horizon film on 'Whales, Dolphins and Man' introduced by Ellis Monks as the Nairobi representative of the World Wildlife Fund. As most members will be aware WWF's current campaign 'The Seas Must Live' is an attempt to preserve the entire marine ecosystem before it is completely and irreversibly ruined by human greed and callous indifference.

Whales and dolphins are among the most specialised of all mammals and the film pinpointed some of the anatomical and physiological adaptations that made them uniquely successful until the advent of technological man. As examples may be quoted: the body shape of dolphins which reduces turbulence, and hence frictional drag, along the body to an absolute minimum; the collapsing of the thoracic cage during deep dives with the ensuing lack of gaseous exchange between blood and lungs preventing the 'bends'; the ability of the brain and all other tissues except cardiac muscle to respire anaerobically during deep dives; and the regenerative power of the skin to heal without formation of persistent scar tissue.

No less intriguing are the discoveries concerning the sense organs, brain and mental powers. Structurally the dolphin brain is very similar to that of man, the most obvious differences being in the greater development of those parts associated with the auditory sences and the fine control of muscular movements. Echo location is developed to an even more precise level than in the bats and moreover is used in an intelligent rather than an instinctive manner. Social communication is by grunts and squeaks and clicks which the animals certainly use to transfer information about their emotional state and quite possibly abstract ideas as well. Regardless of the precise neural organisation involved it is still a remarkable achievement for one dolphin to react to either a flashing light or a steady light by making sounds to which another dolphin in a separate tank and unable to see the first responds by touching one or other of two buttons. Humpback Whales may well be able to communicate with each other over distances of several hundred kilometres.

Unfortunately for the animals concerned the cetacean life style has favoured the evolution of a limited number of huge species. The Blue Whale, over 30 metres long and equivalent in weight to 25 Elephants, is the largest animal ever to have existed on this planet. Since 1900, over 300,000 Blue Whales have been slaughtered by man; the numbers are now so low that even in the absence of further hunting the species' recovery is doubtful. As the hunting of Blue Whales became uneconomic

the whaling industry turned its attention to the other large species most of which have now been reduced to 20% or less of their former populations. Leaving aside the question of whether man is morally entitled or justified in hunting creatures whose mental development is now known to be of a similar order to our own, the whaling industry led by the U.S.S.R. and Japan, has consistently refused to operate on a 'sustained yield basis' and has vetoed all constructive conservation measures including the recently recommended 10 year moratorium on all whaling. A main reason for this is a determination to extract the maximum financial return from their expensive factory ships before these reach the end of their sea-worthy lives in the fairly near future: that their policy will exterminate the large whales does not appear to concern them at all.

Ironically, 'animal lovers' provide the main market for whale products in the form of pet food. The only way to save the whales is for non-whaling nations to ban the import of whale products thereby destroying the market for the whaling industry before the latter destroys the whales. Whale products are not necessary for human survival or well being and in economic terms the industry is 'worth' considerably less than the peanut industry. For trivial short term benefits to one greedy industry centred on two nations mankind is prepared to allow the extinction of the great whales, exquisite end products of millions of years of evolution.

I think most members present left the meeting feeling ashamed of belonging to a species that with characteristic arrogance has named itself sapiens.

J.F.R.

Camp at Kilamata, Engari Ngiro Swamp. 15th/16th July 1978

A weekend was all to short for this exciting expedition to the edge of a huge swamp of the Engari Ngiro River, according to some fifty members who came along. Birds were there in thousands; for some it was enough to gaze upon the many species of waterfowl to be found in the open waters fringing the Typha swamp; others took delight in watching the destructive little birds which have been much in the news lately; huge flocks of Quelea with their companion Silverbills and Chestnut Sparrows - a hurricane of birds boiling their way to the water, settling into the stunted Acacias and turning the ecology upside-down - for what we had seen as Acacia bushland turned into broad-leaved savannah with the birds arranging themselves along every branch and looking from the distance like tightly packed leaves. It is fascinating to watch them, each in turn, hop to the end of a branch overhanging the water, take a life-giving sip and fly to the top of a tree, leaving his position free for the

next bird.

A Crake caused some concern; it was reported, and groups, at different times, went to investigate. No-one could agree on a description and there were so many trips to the Museum Bird Room after the weekend that Curator Cunningham van Someren took to pointing to the Crake cabinet on spotting a Society member in his domain. It soon became apparent that two species were involved, the Lesser Spotted, Porzana pusilla and a sub-adult of the Striped Crake, P. marginalis, both of which are rarely seen.

Good to see too was a Pigmy Kingfisher, Ceyx picta placed close enough to the Malachite, Alcedo cristata for hitherto confused members to really mark the difference.

A pair of adult White Storks, Ciconia ciconia were seen about six kilometres from Camp. A not very usual sight at this time of the year. As for the rest - there were too many to recount here and a list has been deposited in the Society's office.

The campfire on Saturday night saw many members brave the voracious appetite of the mosquitos but only a few of us were badly bitten, it seems. Entomologist, Mike Clifton tells me that some species of these predators are attracted to a high carbon dioxide output; those people with a high metabolic rate being first in line of fire - the author being one of them ! Next comes body temperature. It may be only half a point higher than that of your neighbour but it will be you they are after. Hormones come into it too, but we await the results of that research.

On the Sunday morning, many of us left the charms of our shady campsite by the swamp and followed leader Pat Kelly to Lake Natron, passing Mt Shompole on our left. On arrival in a lava strewn valley we left the rugged four-wheel drives and climbed to the top of the hill bordering the lake. The view was glorious and we sat long gazing at this lovely wild stretch of water pink-fringed with Flamingo, the foreground graced by great stands of the Desert Rose, Adenium obesum.

In fact we could have taken the four-wheel drives to the top of the hill for one of them came to help down our most intrepid member, 75 year old Priscilla Allen, who had made it to the top on foot much to the amazement of the teenagers.

Back near the campsite herds of wild animals were seen: Giraffe, Wildebeest, Zebra, Grant's Gazelle and Warthog. A Masai told us that there were many lions in the area, 'mingi, mingi'. We asked how many. He replied, 'three' pointing to

the hills at least 40 km away.

The campsite was certainly one of the better ones. Large Acacia tortilis shaded the tents and provided a screen from the herds of cattle and goats driven to the water by their Masai owners. Being well stocked the country around is rather degraded, much of the long grass trampled to the ground and many bare patches left. Amongst the flora surviving the depridation were : Mearua kaessneri, Boscia mossambicensis, Calotropis procera, Coccinia adoensis, Cardiospermum halicacabum and Glinus lotoides. The Nile Cabbage, Pistia stratiotes which has done so much damage, closing waterways elsewhere in Africa, was also to be seen.

Three tents remained on the Sunday night. A breeze kept the mosquitoes away and with nightfall came the sound of galloping hooves followed by much splashing and romping; the Zebra or Wildebeest perhaps ? Then came bird sounds, loud piercing whistles amplified by the night air. We went in the vague moonlight to find out what they were and made a more important discovery. The tide was coming in ! It was weird seeing this water creeping slowly towards the area where our tents were pitched. Markers were pushed into the ground. The water was coming in at a rate of five metres in fifty minutes. A little mental arithmetic indicated that if it continued at the same rate then it would reach our tent in ten hours. Time to sleep then. Dawn showed that the swamp water had covered 15 m of what had been dry ground and then stopped. A Masai told us that the water never reached the tall trees of our campsite so one need have no fears on future occasions. And future occasions I hope there will be.

J.H.

'Flight for Survival'

Members who did not attend last year's screening of 'Flight for Survival' organised by the Ornithological Sub-Committee to publicise the Society's bird journal Scopus were fortunate to have another opportunity to see this fine film on 14th August when it was made available to the Society through the generosity of World Wildlife Fund.

'Flight for Survival' is about bird migration, especially between western Europe and Africa, and is undoubtedly the most ambitious film yet produced by the Royal Society for the Protection of Birds, Britain's most active conservation body. The basic plan of the film was to trace the journeys of birds breeding in Britain and further North to their wintering grounds in Africa. To achieve this the RSPB team had to visit places as far apart as Greenland and the Cape.

Because of bad weather less footage of high arctic breeding species was obtained than had been planned but even so there were memorable sequences of Sanderling and Barnacle Geese which were then followed southwards to their respective winter quarters along with many other migrant species. The Sanderling ended up on a tropical shore which members identified with some confidence as Watamu though the sound track placed it in West Africa! Swallows hawking for flies among herds of big game in Tsavo were a familiar sight to our members but must have provided quite a jolt for British viewers. Rather surprisingly nothing was shown of the Ngulia ringing activities.

Although the more dedicated ornithologists would have liked some aspects of migration to have been dealt with in greater depth the film certainly succeeded in conveying the vast scale of the remarkable phenomenon of bird migration and its attendant hazards. The RSPB film unit is to be congratulated on an excellent and imaginative production.

J.F.R.

REQUEST FOR INFORMATION

I am trying to trace a certain book whose title and author I do not know. However, I do have a description of it : Author: a Scottish Missionary Date: early 19th Century (c. 1820? could be later) Subject:. an account of the missionary's labours and travels Description: A thin book, with old-fashioned print (F instead of s ?) pages possibly yellowed with age.

The book apparently mentions a visit to a lake in the northern borderland region of Kenya/Ethiopia. It would be greatly appreciated if those with libraries containing old books could check if they have it. I am interested only in the name and author. The former hunter, Blaney Percival is said to have had a copy.

A.J. Troughear, P.O. Box 30456, NAIROBI

SOCIETY NOTES

A Guide to Common Reef Fishes of the Western Indian Ocean by our fellow member, Ken Bock is reviewed on page 112 of this issue. Copies should be available in Kenya in September, and the Society has made arrangements for its members to obtain it at a special discount price of Shs. 32/-. Please place your orders now with the Secretary, P.O. Box 44486, NAIROBI. It is an excellent publication, and very well worth the money.

70th Anniversary of the Society. The Society was formed on 25th March 1909, and 1979 will be our 70th anniversary. The Executive Committee would like to hear from any member who remembers the early history of the Society. Please contact the Secretary at the Society's address. We would also like to have your ideas on how to celebrate this occasion. A conversazione may be arranged, would you be willing to help ? The Secretary is looking forward to hearing from you, as soon as possible please.

Faces of Kenya, the wonderful photographic book of Kenya is now in short supple, but more copies are on order. Cost to members, a specially reduced rate of Shs. 180/- per copy. Orders to be placed through the Secretary, P.O. Box 44486, NAIROBI

NEW MEMBERS

Local Full Members

Mrs V. Boga, P.O. Box 44136, NAIROBI
Mr D. Grainger, P.O. Box 90404, MOMBASA
Mr and Mrs O.J. Weale, P.O. Box 30707, NAIROBI

Local Half Year Members

Mrs Jean Brown, c/o P.O. Box 14278, NAIROBI
Mr Howard Gordon III P.O. Box 30137, NAIROBI
Mr and Mrs H. Jensen, P.O. Box 14800, NAIROBI
Mr and Mrs E.W.V. Knox, P.O. Box 30333, NAIROBI
Mr and Mrs D. Law, P.O. Box 49069, NAIROBI
Mr Keith Lindsay, c/o Amboseli National Park, P.O. Box 18, NAMANGA, Kenya
Mrs C. Loehr, P.O. Box 191, KERICHO, Kenya
Ms Nancy Lupton, I.L.R.A.D., P.O. Box 30709, NAIROBI
Mr Ernst A. Magius, P.O. Box 186, NAIVASHA, Kenya
Ms Sandra McNeilly, American Embassy, P.O. Box 30137, NAIROBI
Mr J.A. Parrish, P.O. MAGADI, Kenya
Mrs M.A. Parrish, P.O. MAGADI. Kenya
Mr Paul D. Sayer, P.O. Box 29059, KABETE, Kenya
Mr Norin Torsten, Radiotherapy Dept., Kenyatta National Hospital, P.O. Box 20723, NAIROBI
Dr E.D. Tweddell, P.O. Box 30340, NAIROBI

Local Junior Members

Sakib Nadeem, P.O. Box 46624, NAIROBI
Miss J.M. Parrish, P.O. MAGADI, Kenya

Overseas Half Year Member

Mr Anders Hoff, Uppahra Lillgard, S-225 90 LUND, Sweden

SOCIETY FUNCTIONS

Monday 11th September 1978 at the Museum Hall, Nairobi: 5.30 p.m. Mr and Mrs P. Gerrard will give an illustrated lecture on 'The American Bald Eagle'.

Sunday 24th September 1978: Day field excursion to Lukenya, south east of Athi River town. Leader Mr Peter le Pelley. Please meet at the National Museum, Nairobi at 8.30 a.m. sharp and bring a picnic lunch and walking shoes. There are a number of interesting species of birds of prey on the mountain.

Monday 9th October 1978 at the Museum Hall, Nairobi: 5.30 p.m. Mr Mike Clifton, Entomologist of the National Museum will give an informal lecture on butterflies. The talk will be illustrated with slides and specimens.

October 20th/22nd 1978: Field excursion to Kericho Forest. Leaders Mr Wilson Ruara and Mr R. MacGregor. Mr Ruara is an expert on the forest trees. Bird watching also interesting. Members wishing to take part in this excursion should be prepared to camp, being completely self contained with equipment, food and drinking water. The camp site will be about 170 miles from Nairobi. Any member interested in joining this camp should please fill in the enclosed slip and return it to Mrs A.L. Campbell, P.O. Box 14469, NAIROBI before 1st October. Please enclose a stamped addressed envelope. Further details will be sent out after that date.

Sunday 12th November 1978: Day field excursion to Migaa Estate in the Kiambu area. General natural history interest. Please meet at the National Museum, Nairobi at 9 a.m. sharp, and bring a picnic lunch if you intend to stay during the afternoon.

Monday 13th November 1978 at the Museum Hall, Nairobi: 5.30 p.m. Dr S. Cobb of the Department of Zoology, University of Nairobi will give an illustrated lecture on 'The Rise and Fall of the Tsavo Elephants'.

December 2nd/3rd 1978: Bird census organised by Mrs Fleur Ng'weno and Dr John Gerhart. Details in the next Bulletin.

Important Notices for those attending Functions

1. No camp information will be sent if a stamped addressed envelope is not enclosed when returning the camp slip.

2. Non-members attending Society functions will be asked to pay Shs. 10/- for day trips and Shs 20/- for camps.

THE EAST AFRICA NATURAL HISTORY SOCIETY

Chairman: J. S. Karmali
Vice Chairman: Dr J. Kokwaro
Editor, Jl E. Africa nat. Hist. Soc. Nat. Mus.: Mrs J. Hayes
Secretary/Treasurer: Miss D. Angwin
Ass. Secretary/Treasurer: Mrs E. B. Angwin
Librarian: Dr J. Kokwaro
Executive Committee (in addition to the above): Miss P. M. Allen, G. C. Backhurst (*Ringing Organizer*), Mrs A. L. Campbell, M. P. Clifton (*Editor EANHS Bulletin*), Dr J. Gerhart, Dr J. M. Mutinga, Dr D. J. Pearson, J. F. Reynolds.
Co-opted Members: Mrs H. A. Britton (*Nest Record Scheme Organizer*), P. Davey, M. Gilbert, Dr A. Hill, J. Maikweki, J. Miskell, M. Mukoko, Mrs F. Ng'weno, D. A. Turner.
Journal Editorial Sub-Committee Mrs J. Hayes, Miss D. Angwin, Mrs V. Balcomb, M. P. Clifton, Dr D. J. Pearson, J. F. Reynolds, Dr A. Hill.
Ornithological Sub-Committee Dr D. J. Pearson, D. A. Turner, G. C. Backhurst, Mrs H. A. Britton, P.L. Britton, Dr A. W. Diamond, Dr J. Gerhart, B. S. Meadows, J. F. Reynolds, D. K. Richards, A. D. Forbes-Watson, C. Mann (London) Dr M. Carswell (Kampala), Dr K. Howell (Dar es Salaam).
Joint Library Sub-Committee (Society representatives) Dr J. Kokwaro, Mrs J. Hayes, M. P. Clifton.
Functions Sub-Committee Mrs A. L. Campbell, Mrs E. B. Angwin, M. Gilbert.

MEMBERSHIP

This offers you free entry to the National Museum, Nairobi; free lectures, films, slide shows or discussions every month in Nairobi; field trips and camps led by experienced guides; free use of the Joint Society-National Museum Library (postal borrowing is also possible); reciprocal arrangements with the Uganda Society's Library in the Uganda Museum, Kampala; family participation: wives and children of members may attend most Society functions; one copy of the *EANHS Bulletin* every two months; a copy of each *Journal* published during your period of membership; the Society controls the ringing of birds in East Africa and welcomes new ringers and runs an active Nest Record Scheme; activities such as plant mapping and game counting are undertaken on a group basis. Membership rates are given at the foot of this page.

JOURNAL

The Society publishes *The Journal of the East Africa Natural History Society and National Museum.* Each issue consists usually of one paper, however, sometimes two or more short papers may be combined to form one number. The aim of this method of presentation is to ensure prompt publication of scientific information; a title page is issued at the end of each year so that the year's papers may be bound together. Contributions, which should be typed in double spacing on one side of the paper, with wide margins, should be sent to the Secretary, Box 44486, Nairobi, Kenya. Authors receive twenty-five reprints of their article free, provided that these are ordered at the time the proofs are returned.

E.A.N.H.S. BULLETIN

This is a duplicated magazine issued six times a year, which exists for the rapid publication of short notes, articles, letters and reviews. Contributions, which may be written in clear handwriting or typed, should be sent to The Editor (*EANHS Bulletin*), Box 44486, Nairobi, Kenya. Line drawings will be considered if they add to the value of the article. Photographs cannot be published.

SCOPUS

The Ornithological Sub Committee publishes this quarterly bird magazine. Cost: EANHS members KShs. 50/- p.a., non-EANHS members KShs. 75/- p.a. All correspondence to D. A. Turner, Box 48019, Nairobi, Kenya.

MEMBERSHIP SUBSCRIPTION RATES

Life	One payment:	Kshs. 750/-
Institutional (schools, libraries) .	annual payment:	Kshs. 50/-
Full Local	annual payment:	Kshs. 50/-
Overseas	" "	Kshs. 70/-
Junior (full-time student, no *Journal* supplied) . . .	annual payment:	Kshs. 10/-

Subscriptions are due 1st January. From 1st July you may join for Kshs. 35/- and receive publications from that date. Application forms for membership are obtainable from the Secretary, Box 44486, Nairobi.

QH
7
E135
SI
NH

EANHS

BULLETIN

A publication of the East Africa Natural History Society, Box 44486, Nairobi, Kenya. Price 4 shillings

NOTES FOR CONTRIBUTORS

Members of the Society (and non-members) are asked to follow these simple instructions when writing articles or letters for submission to the *Bulletin*. The *Bulletin* is presented six times a year in a duplicated format: the paper size is 20.5×23 cm (10×8 inches), line drawings can be reproduced but the area should not be more than 17.5×23 cm. Lettering on figures should preferably be in 'Letraset', neatly done in Indian ink or left blank: if the last method is followed, the lettering should be indicated on an overlaying sheet and should *not* be done on the figure. Figures should be prepared on good quality white writing paper and not on Bristol Board or other thick material. Whenever plants or animals are mentioned the scientific name should also be given but not in parenthesis. Trinomials should not be used unless there is good reason to do so. Author's names of species are not required.

Contributions may be typed (preferably) or written clearly and should be sent to: M. P. Clifton, Box 44486, Nairobi, Kenya. Receipt of contributions will be acknowledged.

CONTENTS

Notes from Watamu, Coastal Kenya 122
Nesting Record of the Silvery-cheeked Hornbill 125
Baboon Trapped in a Tree 127
From Grass-Like to Arborescent - The *Sansevieria* species . 128
Lygodactylus picturatus Feeding on *Trigona* Honey 133
Lion Fights 134
Steppe Eagle in Nairobi National Park 136
Two Natural History Notes 137
Butterflies Impaled on Grass - An Answer 137
Book Review 138
Request for Information 139
For Sale 139
Society Lecture Notes 140
Society Notes 142
New Members 143
Society Functions 144

NOTES FROM WATAMU, COASTAL KENYA

OBITUARY Nephila spider who had lived so happily just off our verandah since the beginning of January this year, died on the 15th July, followed in the same week by three others in the garden. They had had a hard time at the end, fierce winds and heavy rain tore their webs to shreds every night, and they really starved - without good webs they were unable to catch insects, which in any case were unable to fly around in that wind. We fed ours with grasshoppers and mantids when we could catch them, but she got thinner and thinner and seemed to run out of web altogether, so she quietly died. A friend up the beach - another spider hater - also had a pet Nephila who had spun her web just outside their bedroom window about mid-February; this one disappeared about three weeks after mine. Could seven to eight months be their life span ?

There are still plenty on the telephone wires between Vipingo and Kikambala, and there are a lot of little white nest cushions too, but whether the spiders are the same ones as seen earlier in the year or a new lot, I do not know. We have several young ones in the garden, 2 - 3cm long, but I never found any masses of eggs, they must all have been well hidden in the bush, unless they blew away. There should be quite a population explosion later on this year if the number we had around earlier is anything to go by.

BLACK MAMBA NEWS - AND I DON'T LIKE IT MUCH ! There is a lot I don't know about Black Mambas, Dendroaspis polylepis polylepis. That we have one around we already know, she left us her skin at the end of September last year (EANHS Bulletin, November/December 1977, p. 134). She must also have laid eggs in the sand in the bush nearby. On 5th May, we had had 175mm (7") of rain during the day; I went upstairs at about 10.30 p.m. to collect my family of eight 7-week old Burmese kittens to put them to bed - quite a job that was too, to find them all every night. Three were on the upstairs balcony and were playing with a small dark snake, about 50 cm long. Their mother is a great hunter and has brought in snakes before, so I was not surprised. It was a bit battered looking, and so was one kitten. At first I thought it was a Brown House Snake, Boaedon fuliginosus fuliginosus until we had a closer look. It was a young Black Mamba, so Pat, my husband, hit it hard with a large stick we keep up there. As he did this I looked behind him, and there was another coiled in a strike position - so that was also dispatched. The kitten died about half an hour later, it must have been bitten on the front paw, we could not see any kind of bite on its face. We were, of course, worried as to how two young mambas had got up to our upstairs balcony. Next morning the mother cat went out and was looking up the wall on which we have a large and prolific Vanilla Orchid, Vanilla polylepis (how aptly named !). This is a real 'beanstalk' and we have upwards of twenty climbing shoots, sending

out sucker aerial roots which cling to the wall, and during the rains these grow at a rate of about 4 cm a day. This looks like a whole lot of writhing snakes; on investigation we found two more young mambas up at the roof level. No doubt they were refugees from the flood - and then half an hour later we found No. 5. No. 6 was found down below later that day. I'm afraid we killed them all. On enquiring I was told that 25 - 30 eggs were usually laid - that left quite a lot still to come. Can anyone give me more information on this please ? How old would they have been ? I did not measure them accurately, but they varied from about 50 to 60 cm in length and were about as thick as my index finger.

On 27th September this year I found another skin - a very big one. This was shed up a bougainvillea near the kitchen, only a short distance away from where the original skin was shed. I did not find it all this time but the 160 cm that I did find was all body as there was no sign of the tail. It was 14 cm in circumference at the thickest part, and if the first one was anything to go by, that at 244 cm long had a 59 cm tail; so this one would be a minimum of 2.75 m at least. The head was intact, and the scales were the exact shape as the first one. Could this be the same one now grown longer ? Would she grow that much during a year ? My cook was not at all happy about it, he had hung his weekly washing just near where she must have been lying up. No. 1 was with us for four days, and this last one must have only been about 2.5 m from the ground. I fear if we find her again we shall just have to get rid of her, she is too tame and too dangerous, apart from humans there are dogs and cats around that area too - and she will surely lay more eggs in our garden.

While still on snakes, we watched a beautiful Tiger Snake, Telescopus semiannulatus semiannulatus on the morning of 9th September, swallowing a bright green chameleon. It was half swallowed when we found it, so were unable to identify the chameleon. It had fallen from yet another bougainvillea on to the path underneath. The snake must only recently have shed its skin, and was a beautiful orange-brick colour, with dark grey blotchy stripes. I hope the slides I took are good.

This is a good week for snakes - this afternoon we found a new one, slender, about 56 cm long, pale cream with grey-black diamonds all joined together along the spine. We looked it up, and decided it was an Eastern Bark Snake, Hamirhagerrhis nototaenia nototaenia: (A Field Guide to the Snakes of Southern Africa by V.F.M. FitzSimmons) "also called Eastern Spot-striped Snake because of the conspicuous dark markings on the back. Distribution from Sudan and Somalia, extending southwards over the eastern half of Africa into northern Botswana and north-east Transvaal. A savannah species frequently found under the bark of trees. An extremely docile little snake which seldom attempts

to bite even when first captured and lives mainly on small lizards of the gekko and skink families". I would have kept it for a pet had I known it was so docile, we mearly wanted to get it out of the house and away from the kittens.

TERNS ON WHALE ISLAND Large numbers of Roseate Terns, Sterna dougallii were sighted on Whale Island on 2nd July, on the 5th we went out to the Island, not landing so as not to disturb them in any way. Many birds were flying round and presenting small fish. On 10th July our boat broke away on a heavy sea and needed attention before we could once again get out to investigate. We went out on 24th July. Many eggs had been laid on the main Island, there were eggs everywhere in open nests - really just a bit of scraped ground. But as we had had very good rain there was a lot of greenery, a kind of tough coarse grass, so we did not walk round very much in case there were eggs hidden under the grass. Some nests had two eggs and some only one. We collected one egg from a 2-egg nest and broke it open, we thought the embryo to be 2 - 3 days old, very new. On the solitary rock to the south of the Island there were also a lot of eggs, but only singles, obviously the nesting ground for the latecomers, this rock being much more exposed to wind and rain. The Roseate Terns were still presenting fish. There were also quite a lot of Bridled Terns, Sterna anaethetus flying round with the Roseate, but none of these were presenting fish.

On the 28th July we went up to Nairobi and were away for a week. On our return on 5th August we could not see any birds at all on the Island. This seemed strange and very distressing. We, of course, blamed the fishermen - they must have been on the Island stealing eggs. We had been careful not to tell anyone about the Terns apart from our neighbours. Perhaps we should have told the National Park rangers and asked them to watch the Island. Our neighbours said they had noticed that the birds had gone on the morning of the 2nd August. We went out to the Island on the 6th, it appeared that the birds had just abandoned their nests and eggs. The eggs were still there in large numbers, both on the main Island and on the rocks, a few had been opened and eaten, maybe by Gulls ? What could have made them abandon their eggs like that ? In 1977 they came, stayed only a couple of weeks and then left again. In the past we knew the nests have been raided and the eggs taken by fishermen, but that did not make them abandon everything en-masse like that. G.R. Cunningham van Someren did not agree with our idea that the supply of small fish nearby had run out, he suggested, "We should check very carefully for the possible presence of Ornithodorus ticks. These ticks caused the death through a virus infection, of hundreds of Terns on an Indian Ocean Island a few years back. Maybe swarms of hungry ticks attacked the birds causing them to desert ". We will now search for the ticks, but have been unable

to do so until now as our outboard motor has been out of order, despite having twice been back for repair. We even borrowed one to try and get to the Island, but that too stopped halfway there and we had to paddle back to shore. We should get there soon.

OTHER BIRD NOTES The African Pied Wagtail, Motacilla alba vidua have had a bad time lately, in fact a bad year, and despite seven nestings, there have so far only been five young reared. They have two very new ones now. Heavy rain storms wet the nest, another time the boat came ashore having somehow broken one anchor rope and unknotted the second due to the constant action by high waves. We saved the boat, luckily someone saw it come ashore, and it was not too badly broken, but two ten-day old Wagtails were drowned. Then somone's children played around in the boat and accounted for the next clutch of eggs - nearly hatched. I'll write these up fully at the end of the year, but it is interesting as I am told by Dr L.H. Brown that we may have a 'nesting record'.

A new flock of birds arrived along the beach last week, about 200 - 300 Magpie Starlings, Speculipastor bicolor; according to Mackworth-Praed and Grant they range from S. Ethiopia Kenya and southern Somaliland. They have been recorded at the mouth of the Tana River, and I'm told have been seen in Mombasa when the figs are ripe. However, we have never seen them before, and were lucky in that we could positively identify them - one flew into an overhead wire on 30th September having flown past the front of our car, and we picked it up - stunned. There we could see the brilliant ruby eyes. After a rest in the shade under a bush the bird flew off again. The Starlings are still flying around just above the beach, there must be some berries or seeds they are after there.

The Carmine Bee-eaters, Merops nubicus never came to the Mida roost at all this year. We have had a single bird which is often seen on the wires but on 31st August we heard them in the early morning, and saw 12 flying around near the beach. We have seen them several times lately, and also seen a few occasionally on the wires beyond Kilifi-Bamburi. I hope they come back in their thousands to the Mida roost at the end of the year.

Anne V. Donnelly, P.O. Box 420, MALINDI, Kenya

NESTING RECORD OF THE SILVERY-CHEEKED HORNBILL

Having read the notes in recent issues of the Bulletin on gatherings of the Silvery-cheeked Hornbill, Bycanistes brevis, we thought that the following abbreviated account, taken from notes made in 1965/66, might be of interest to readers.

The event was recorded at Kivulini Farm in the Molo district of Kenya, 35° 47' E, 0° 15' S at an altitude of 2,350 m in a forested valley of the Gathegi River.

On the morning of 15th October 1965 a male Silvery-cheeked Hornbill was seen clinging to the trunk of a Mutati tree, Polyscias kikuyuensis, some 20 m from the ground and just below the large hole left by the falling of a rotten branch. Inside this hole could be seen the bill and head of a female, industriously pecking at the rotten wood just inside the hole and flicking out chips with her bill.

On the 16th and 17th the female was still seen to be excavating, but on the 18th she was rubbing her bill around the entrance to the hole as if polishing. There was no sign of the male. On the 19th mudding operations started. The male collected the mud from the farm road, some 300 m from the nest tree, and carried it to the hole and passed it to the female who remained inside the hole. He passed it in round balls a little smaller than golf balls which he appeared to regurgitate one at a time. He would carry four or five balls per trip and his bill was closed with no balls visible when in flight.

At the begining the hole was about 25 cm by 37.5 cm and the female did all her work from the inside; the male was never seen to enter the hole. She started by plastering a layer of mud all round the enterance before starting to close the hole. For the first two days she continued to squeeze in and out but after that the slit was too small and she remained inside. By 25th mudding was completed and drying out rapidly. The final slit was about 5 cm wide and 12.5 cm from top to bottom.

Between then and the 5th March 1966 the female remained within the hole being fed regularly by the male, mainly on berries which he carried in his crop and regurgitated one at a time and passed through the enterance of the slit and her beak came out to receive them. He was also seen to pass her small green twigs and stones which she accepted and pulled into the hole. She, for her part, occasionally cleaned out the nest by flicking small bits of droppings out of the hole with her bill. These were inspected and had the consistency of posho.

On the evening of 5th March the mud had been broken away and the bills and heads of the female and one juvenile could be seen within the hole. The juvenile's bill was short and stubby and could not be confused with that of the female. Meanwhile the male was flying up and down the valley in a state of great agitation, honking and braying like a donkey. It was obvious that the cause of all the trouble was a Crowned Eagle, Stephanoaetus coronatus, which had taken up station on a dead

branch some 30 m away and was watching the hole intently. This situation remained unchanged until almost dark when we interfeared and drove off the Eagle.

At 6 a.m. the next morning the female had left the nest and was flying around with the male, and the Eagle was again at its station. We drove him off once again, and at 10 a.m. the young Hornbill made its first inaugural flight in the form of a downward glide, which we actually managed to photograph, to a dead branch of a Cedar tree, Juniperus procera, some 50 m from the nest tree. It 'crash-landed' on the branch and after a few desperate seconds managed to gain its balance.

By the 7th March the trio were still in the vicinity of the nest with the juvenile taking short flights and being fed by both parents; there was no sign of the Eagle. At mid-morning there was a terrific commotion in the valley which was filled by the raucous calls of some fifty Silvery-cheeked Hornbills. These flew up and down the valley in great excitment. This continued for nearly two hours when they suddenly all flew off across the forest and peace reigned. Both parents and the juvenile had left with the group.

Although we lived at Kivulini for two and a half years after this event and Silvery-cheeked Hornbills were common in the forest we never saw any further interest in the nest tree, this may have been due to the fact that a great deal of clearing took place in this valley during the succeeding year.

John and Helen Start, Emandale, Manor House Lane,
Higher Heath, WHITCHURCH, Shropshire, U.K.

BABOON TRAPPED IN A TREE

During a recent visit to Nairobi National Park with K.S.P.C.A. inspector Francis Ng'ang'a, our attention was drawn to a " monkey on a tree " by his four year old son John. It looked at first like a growth on the trunk but on closer inspection turned out to be a female Baboon trapped by its left arm in the narrow space between twin trunks, and only 2 m off the ground. Sad to say she was dead.

It would have been very easy to rescue her, especially with an expert at hand ! She must have shinned down the trunk at full speed as her legs were firmly wedged. There were scratch marks on the tree showing how she had struggled, but not as extensive as one would have imagined. It certainly saddened our day.

Miss M. Buchanan, P.O. Box 14497, NAIROBI

FROM GRASS-LIKE TO ARBORESCENT: THE SANSEVIERIA SPECIES

This heading is apt to surprise most readers for the only Sansevieria which is widely known is the sword-blade leaved Sansevieria trifasciata with its yellow-edged variety laurentii and some other cultivated forms. It is one of the least demanding and almost indestructible indoor plants and therefore widely cultivated. Only a few readers will be aware how many species are known and how varied their growth forms, ranging from small, sward-forming plantlets to tree-like - as is evident from their specific names.

In 1737 Carl von Linne still included Sansevieria with the Aloes. Michel Adanson recognized them as a distinct genus in 1763. Vincentus Petagna christened them Sanseverinia in honor of Raimond de Sangro, Prince of Sanseviero (1710 - 1774), a name which was finally changed by Thunberg in 1794 to the now valid name Sansevieria.

The leaves of many Sansevieria species contain tough fibres, locally used for making ropes, nets and bowstrings which explains the expression 'bowstring hemp', another term is 'mother-in-law's tongue'.

To date about 70 species have been described. Their epithets span the entire alphabet, ranging from abyssinica via liberica and rhodesiana to zeylanica - indicating their geographical distribution: Tropical Africa, India and the islands of the Indian Ocean. The region with the greatest number of species is undoubtably East Africa. A journey from Nairobi to the coast, a trip of about 500 km, leads through a veritable Sansevieria paradise along which about a dozen species are encountered.

Some species are named after their discoverers, such as S. ehrenbergii after the German naturalist C.G. Ehrenberg, S. schweinfurthii after the well known botanist G.A. Schweinfurth and S. volkensii after Professor G. Volkens from Berlin who made a thorough study of the flora of Mt Kilimanjiro just before the turn of the Century. The epithets of most species are descriptive of their form, such as arborescens (tree-like), caespitosa (sward-forming), cylindrica (cylindrical), gracilis (slender), intermedia (intermediate), parva (small), robusta (vigorous) and suffruticosa (shrubby) - an indication of the great variety of growth forms that exist.

Similar, but often quite characteristic, features of certain species permit a more or less satisfactory subdivision of the genus Sansevieria. An initial division is based on the form of the inflorescence: branched, capitate or spike-like. The section with branching inflorescences includes pinguicula, arborescens,

powellii, robusta and - possibly identical with the latter - ehrenbergii. Capitate inflorescences are found in kirkii, braunii and singularis. The great number of spike-like racemes can be sub-divided on certain vegetative characters. At first the species with runners above the ground can be split off, such as caulescens, suffruticosa and gracilis.

For the classification of the remaining species the cross section of the leaves provides a useful guide. More or less cylindrical leaves produce cylindrica, schweinfurthii, sulcata and canaliculata which, incidentally, may be identical to the latter. Species with leaves of a semi-circular cross section but deeply channelled along the upper surface are intermedia, volkensii, zeylanica, rhodesiana and deserti. Species whose leaves show a compressed-flattened cross section can also be sub-divided into those with green soft margins and others with brown horny margins. To the former are trifasciata, senegambica, parva and caespitosa; to the latter belong conspicua, grandis and raffillii.

One of the most interesting species of Sansevieria is pinguicula from North-East Kenya, discovered and described by P.R.O. Bally in 1964. With its short, thick, wedge-shaped leaves terminating in a sharp spine it is reminiscent of an Agave. It is one of the few species which have so far not bloomed in spite of many years of cultivation. With its compact rosette of leaves measuring about 30 cm across, it is a very attractive plant. Sansevieria arborescens is found in East Africa along the coast between Malindi and Dar es Salaam, to about 100 km inland. The stem, 1.5 to 2 m high, is surrounded in all directions by flattish, linear-lanceolate leaves up to 60 cm long. Its very sharp leaf-spines and its considerable requirement of space do not recommend this species for small private collections in spite of its unusual and bizarre appearence.

Ideally suited for cultivation on sunny windowsills is S. robusta, found in many parts of East Africa. The fleshy leaves, to 2 m long and arranged fan-wise on a short stem are almost triangular in cross section. Grown from seed, a leaf cutting or from a small sideshoot it may take as much as ten years before such a specimen is big enough to develop its inflorescence. In some regions where robusta and arborescens occur together, natural hybrids evidently occur, one of them probably described as powellii. Definite proof of this assumption is still awaited, for artificial hybrids of these two species are as yet only 10 cm high. In powellii the fleshy leaves, to 80 cm long, are also arranged fanwise as in robusta, but they are more or less twisted along the stem which may reach a height of 2 m in mature plants. after many years. Should one of these plants grow too high for one's purpose, one may cut the top off and re-root it.

Among the species with the most beautiful inflorescences, S. kirkii takes pride of place. It is found in the coastal region of East Africa from Mombasa to the South of the Usambara Mountains, the home of the African Violet. With a length of almost 15 cm, this species probably produces the largest flowers within the genus. They are arranged in dense globular heads, forming a ball of flowers with a diameter of nearly 30 cm, borne on an erect flower stem to 60 cm long. The broadly strap-shaped, very stiff and dark green leaves, to 1.8 m long, bear whitish-green markings. Its variety pulchra from Zanzibar Island had slightly smaller leaves with more wavy margins and buff-coloured or reddish markings. It is even prettier than S. kirkii and has the most decorative leaves of the genus.

Almost 20 years before N.E. Brown described singularis, G. Volkens had discovered it on his way from the coast to Mt Kilimanjiro, mistaking it however - on account of the nearly cylindrical cross-section of its leaves - for cylindrica. His accurate description of the locality and of the plant's appearance are worth recording: "The scenery here is not captivating and yet it is between Kihurio and Ndungu...for the botanist the most interesting locality along the entire stretch to Kilimanjiro. It is the so-called succulent-steppe, a most arid and infertile region imaginable, but just for this reason it has brought forth a freakish vegetation which I can compare only with that of the driest desert regions in Egypt. Each plant is really a caricature." And further:"There rise from the soil hundreds of thousands of sticks, green, smooth, to 2 m long, as thick as one's arm beneath, slightly bent and tapering to a hard, sharp tip. No layman would suspect them to be leaves, which in fact they are, always produced singly at intervals of a hand's breadth, disposed in rows, sometimes for several metres in a straight line. Commonly, four such rows are arranged in a square or a rectangle, as if planted by man as pallisades to fence in his goats or sheep." Incidentally, the subterranean white and not stringy part of young leaves of this species is relished by the local people, it tastes somewhat like our kohlrabi. The capitate inflorescences, rarely seen in cultivation, is produced at ground level and has a diameter of about 13 cm.

Species which form runners above ground have more or less cylindrical leaves with a thorn-like tip. At the end of such an 'aerial branch', up to 50 cm long, densely beset with scale-like leaves, the new plant is formed, sending its roots in to the ground and thus standing like on stilts. Sansevieria gracilis, with leaves to 60 cm long and not particularly graceful, is not easily found in the coastal belt which is now densely populated and under cultivation. The sturdier suffruticosa was claimed by N.E. Brown to occur in the idyllic and almost unspoilt vicinity of the impressive but nearly unknown Nairobi River Falls. In 1971

re-collected specimens from the Falls did not differ from the description in leaf character. It was a surprise therefore when the plants came into bloom, because the flower characters differed. Subsequently the confusion was sorted out with the aid of dried material in the Kew Herbarium, almost 70 years later.

Sansevieria cylindrica is a native of Angola. As early as 1885 fibres obtained from this species were shown at the Paris World Exhibition as being used by the local people for the manufacture of strings and nets. The three to five leaves of a shoot are cylindrical in cross-section, paired and usually arranged fanwise, up to 1.5 m long and distinctly marked with bands of paler and darker green. Differing from this species, schweinfurthii from Eritrea produces at least twice this number of slightly shorter, uniformly dark green leaves, lacking the hardened thorny tip, but terminating in a fleshy one with a flattened seam. Both species are attractive and well suited for the succulent grower.

From the Comoro Islands and the East coast of South Africa comes S. sulcata which extends in the North as far as Lindi, Tanzania, as well as being recorded in Madagascar. In collections it is often found under the name of canaliculata, but from the latter, said to come from Somalia, no authentic specimens are known. Both species agree in many of their characters. They are reminiscent of singularis in their growth form though both are far smaller. Weak or sparsely watered plants produce only a solitary leaf from each shoot, while - under appropriate cultivation - up to three leaves to 70 cm long and 2 cm thick may result.

Until recent years no authentic material existed and only a few characters were known for S. volkensii, discovered by G. Volkens near Mt Kilimanjiro and described by Gurke. At present it can be considered as very close, if not identical, with intermedia. Both species usually produce three to seven leaves in a shoot, the outer semi-circular in cross-section, the inner cylindrical with a channel down the face. S. intermedia possibly has a more compact habit, its leaves are about 2 cm thick and usually up to 50 cm long. The inflorescences of both species are dense, spike-like racemes of great splendor, but for their formation they require much light and sparse watering.

The former S. trifasciata was often erroneously called S. zeylanica. The genuine zeylanica, however, stems from Sri Lanka and has an entirely different growth form: its five to eleven leaves on a shoot are banded light and dark green, more or less reflexed, linear or narrowly lanceolate, to 75 cm long, but very fleshy, forming a longitudinal channel to 2.5 cm wide. It is only for this reason that the species is of some interest.

From Nigeria comes Sansevieria trifasciata, its yellow-margined variety, laurentii, occurs in the former Congo - both are well known. Among the numerous cultivated forms the 'Silver Cloud' deserves special mention: alike in shape, its leaves are whitish green at first, later dark green with only a faint transverse banding. Analogous to these three named Sansevieria species there are cultivated varieties forming a rosette of short elliptical leaves called Green, 'Hahnii', 'Golden Hahnii' and 'Silver Hahnii'. The last two mentioned forms are especially attractive, although the 'Golden Hahnii' is slow in growth, delicate and thus justifiably quite expensive.

A native of the former Senegambia is S. senegambica with two to four mostly lanceolate pale green and only slightly marked leaves to 60 cm long and 6 cm wide, not particularly attractive, but easy to grow and to flower. It can be recommended although the inflorescence is rather lax.

Between Nairobi and Nakuru can be found S. parva and the probably closely allied S. dooneri. According to the growth conditions both produce up to 20 linear-lanceolate, handsomely marked leaves up to 40 cm long and 3 cm wide. The leaves of parva are deeply channeled, stiffer and more erect, those of dooneri are flatter, therefore more flexible and recurved. However, intermediate as well as extreme forms occur within their range of distribution. All are modest in their requirements, easily grown and flowering readily. Plants with more of the characteristics of dooneri are very pretty. It is surprising that this species - though represented in many collections - is not more widely used as a horticultural plant. It could well serve, instead of ferns or begonias, for enhancing pots of cacti.

An inconspicuous plant from Southwest Africa, S. caespitosa, was described by Dinter in 1926. A shoot has 10 - 20 linear-lanceolate, dark green leaves, 10 - 20 cm long and 1 - 2 cm wide. In spite of having been cultivated for many years it refuses to bloom, moreover it is a difficult species and therefore only of interest because of its grass-like habit.

In 1906, S. conspicua was discovered from near Mazeras in coastal Kenya. Described as a 'rare species' it was generally unknown for many years. Recently it has been collected several times in the coastal region from Malindi to Dar es Salaam and beyond. The usually rosulate shoot lacks conspicuous characteristics. Its two to five lanceolate leaves are to 60 cm long and 12 cm wide. This species produces a wonderful inflorescence, rather like a small Christmas-tree. Therefore it is one of the most exquisite Sansevieria species, easy to grow and flowers often.

In the Tsavo District of Kenya, S. raffillii was discovered at the beginning of this Century. Its range of distribution is, however, much wider, though not yet exactly defined. Shoots of mature plants produce one to two elongate-lanceolate leaves, 1 m or more long and up to 15 cm wide, conspicuously marked with large, pale green, elongated oval blotches or irregular transverse bands on a darker green ground. In spite of the considerable space it requires it is a desirable species because of its spectacular dense inflorescence, about 1 m high, and its beautifully marked leaves.

Growing from a rhizome, S. grandis is probably a native of South Africa. The rhizome is up to 3.5 m thick, shoots with three to five elliptical leaves, to 60 cm long and 15 cm wide, blueish-green in colour, paler transversally banded when young. Planted like an Orchid in baskets of wooded slats, the rhizomes grow vertically downwards, sometimes to a length of several metres, producing offshoots 20 to 40 cm apart. This species, easy to grow and to propagate, though not readily flowering, is one of the most decorative of the genus because of its unique growth form. Known as the 'pendulous Sansevieria', it is represented in many of the larger collections.

Dr Horst Pfennig, Stielitzweg 18, D-4900 Herford,
WEST GERMANY
(Translated from the original German by Dr P.R.O. Bally)

LYGODACTYLUS PICTURATUS FEEDING ON TRIGONA HONEY

On 18th May 1978 while on foot safari between Dakawa and Msata, Tanzania (approximately 6° 16'S, 37° 42'E) a nest of 'Stingless' or 'Sweat' Bees, Trigona s.l. sp. was found in the hollow of a tree by M. Ligogi and C. Msuya. As we broke open the comb and tasted the honey, bees hovered around the immediate area of the nest and landed on us. The females of this genus have only rudimentary stings, however, and so did not harm us. Bees continued to enter and leave the nest hole as honey flowed from the broken comb and on to the bark of the tree.

Two Yellow-headed Dwarf Geckos, Lygodactylus picturatus, came down from higher branches of the tree and moved to where they were able to lap up the dripping honey. Despite the presence of hundreds of bees, the Geckos were not observed to eat any of the insects, but rather concentrated on the honey. Greer (1967), in the only reference available to us on Lygodactylus spp. behaviour in the field, observed that L. picturatus keniensis and L. somalicus bettersbyi both liked the exudate of Acacia Trees and found that in captivity these

species would lick a variety of jams. J.R. Mainya (pers. comm.) has seen L.p.picturatus in Dar es Salaam lick the exudate of the Cashew tree, Anacardium occidentale.

Greer noted in his study in South Turkana that water economy is of critical importance in an area where there is little water available in the form of dew or rain. In the area where our observations were made there were small pools of water in a drying watercourse and abundant dew formed on the long grass; probably the Yellow-headed Dwarf Gecko was not subjected to particular stress due to lack of water at the time of our observations. Such stress may arise, however, later in the year as the dry season approaches. The reason why Lygodactylus spp. Geckos are attracted to tree exudates as well as honey and the effects of ingestion of these substances on the water economy are not known.

We thank G.R. Else, British Museum (Natural History) who kindly identified the Bees.

REFERENCE:

Greer, A.E. (1967) The ecology and behavior of two sympatric Lygodactylus geckos. Breviora 268: 5pp.

K.M. Howell and G. Mng'ong'o, Dept. of Zoology,
P.O. Box 35064, DAR ES SALAAM, Tanzania.

LION FIGHTS

On the 19th November 1976 I was up at first light and parked on the edge of the large gully near the Tarangire airstrip in Tarangire National Park, Tanzania. I was looking for the Cheetah, Acinonyx jubatus that range that area. At about 7.30 a.m. I saw two adult male Lions, Panthera leo, moving rapidly along the far edge of the gully about ten metres apart. Looking back I think they may have been pacing as they had a strange bouncing gait. I would be interested to hear if any other members have seen this gait used in the context below, or otherwise. My first thought was that the Lions were hunting and I hurried around the gully to get closer. When I found the Lions they had entered a fairly thick patch of small trees and were lying with their heads up and alert. I was glassing the area to see if there was any game in the vicinity and it did'nt register that the two males were staring at each other rather than their surroundings.

All of a sudden a third male Lion appeared from the bush, coming in at right angles to the edge of the gully. He immediately joined one of the first males in attacking the third.

There was a brief scuffle and the attacked male ran off closely followed by the two, who were trying to bite and claw his hind-quarters. The attacked male turned and faced the two and there was a period when they were on their hind legs swatting at each other. All the action was very fast and it was extremely hard to sort out exactly what was going on. The attacked male broke away and ran, again with the two in pursuit; he turned again and there was another brief fight during which one of the males ended up on his back slashing with his feet. Again they broke and the chase resumed. They went maybe another half a kilometre (making the total chase maybe 1.2 km) and all three laid down in the grass panting. I took up a position were the light was right for photography which put me on the base of a triangle formed by the attacking males with the attacked Lion at the apex away from me. This position remained the same for over an hour with all the males intensely alert. The attacked male several times tried to redirect his aggression at me, but each time he growled and started to rise (looking straight at me) one of the attacking males rose and he subsided.

The wounds from the furious fighting were relatively few and one of the attackers seemed to have faired the worst. He had a deep gash in his chest and was limping on one front foot (possibly when swatting, it was caught in his opponents jaw?). The other attacking male seemed unscratched. The attacked Lion had a wound either on his hind leg which would have been of little importance, or in his flank which could have been very serious later if it was into the body cavity. A check was made where he had been lying, and it was found that he had lost an estimated quarter of a litre of blood. After about two hours the uninjured attacking male moved off and a fourth male Lion was seen moving in from the direction he was headed. As the two males converged on a bush at the edge of the gully a fifth male rose and fled from the bush (he had apparently been there even during the fighting that was taking place less than half a kilometre from where he was). The two Lions (both residents) chased him for over three kilometres with frequent rests as by now the day was quite hot. The stranger was keeping well clear of the residents who were themselves up to half a kilometre apart. When I returned to the two wounded Lions I found the third resident limping towards the shade several hundred metres from where I had left him and the stranger was nowhere to be seen; later searches by air also failed. During the following night the two resident Lions rejoined their wounded comrade who had spent the afternoon looking miserable and they killed a young Buffalo close enough for the wounded animal to be able to feed. On the third day after the fight I failed to find the resident males and when next seen the wounded Lion was as fit as ever.

In February 1977 in the Mara National Park, Kenya I again saw the bouncing gait that had drawn my attention to the Tarangire Lions and again aggression followed. This time it was an adult male chasing a 2 - 2½ year old male (a youngster raised in the pride and now being forced out on his own?).. The youngster turned, snarled and there were a couple of ineffective swats when the adult caught up, but the youngster broke and ran and the adult did not follow further.

Gerald Rilling, P.O. Box 284, ARUSHA, Tanzania

STEPPE EAGLE IN NAIROBI NATIONAL PARK

On Wednesday, 6th September, fewer people than usual turned out for Fleur Ng'weno's 'Bird Walk', and as four of the cars had 'season tickets' for the Nairobi National Park, it was decided to make that the scene of our operations for the morning. The result was a count of 72 species, including several that had not been seen by the group, at least since the present writer started keeping the records, and many that we seldom see. One observation in particular may be of interest to other members.

As we proceeded along the main road towards the Hippo Pools we came on a large Eagle eating the remains of another bird of prey on the side of the road. The Eagle was unwilling to leave its feast, tearing at it and swallowing large pieces including bones, and trying to carry it off the road as our four cars, all full of people anxious to have a good look, crept past. When the Eagle left its prey for a few moments one of our party nipped out and secured some feathers from the carcase, which from the size and barring we guessed to be that of a Marsh Owl, Asio capensis, no doubt killed the evening before by someone speeding back from the Hippo Pools to reach the gate before closing time. I have found the bodies of Nightjars on the road in the early morning, killed no doubt in the same thoughtless fashion.

The Eagle itself I put down as a Steppe Eagle, Aquila rapax orientalis because of the amount of white on the rump and primaries. It was early for these migrants, though many European Swallows, Hirundo rustica were noted that same day. Those of us who do not bother with sub-species may take comfort in the thought that the Tawny and Steppe Eagles are now conspecific. Brown and Amadon (Eagles, Hawks and Falcons of the World, Vol. 2, pp. 652-6) list four sub-species besides the nominate race, and say that it is "probably the most numerous Eagle of its size in the world".

Our bird must have been a juvenile to judge by the varied

colouring and bars of white on the wing. As Eagles take so long, sometimes several years, to moult into complete adult plumage, we are likely to see more juveniles or sub adults than fully adult birds. The Museum Ornithologist is preparing a series of skins for special display, from which members will come away with ideas clearer or more confused as the case may be.

In addition to such a fine view of the Eagle at close quarters, we also saw a wonderful display of aerobatics when the Eagle at last left its prey and, as it flew up, was attacked by a pair of Black-shouldered Kites, Elanus caeruleus, who seemed to actually hit it, making it turn upside down in its efforts to drive them off.

Miss P.M. Allen, P.O. Box 14166, NAIROBI

TWO NATURAL HISTORY NOTES

On 21st August 1978, on the side of the Wamba/Lolokwe road, Kenya, we witnessed a Verreaux's Eagle Owl, Bubo lacteus sitting in the low branches on an Acacia tree, not more than 2 m above ground. Clasped in one foot were the clearly visible remains of a partly eaten African Hedgehog, presumably Erinaceus pruneri. The bird was very tolerant, and permitted approach to within seven metres. Excellent photographs were obtained.

- - * - -

On 26th January 1978 in the Aberdare Salient (Aberdare National Park, Kenya) we watched three Spotted Hyaena, Crocuta crocuta feeding on the carcase of a Cape Buffalo, Syncerus caffer that was lying on the edge of a water hole. As we watched, a group of Warthog, Phacochoerus aethiopicus, consisting of three adult females and six youngsters, came down the slope, presumably to drink. The leading female stopped short at the sight of the Hyaenas, gave a short grunt, and charged. She was then followed by the other adults and all the young piglets. The Hyaenas scattered immediately. The Pigs then proceeded to feed noisily, and with obvious relish, on the carcase of the Buffalo. The Hyaenas made several attempts to return to the carcase, but on each occasion were chased off by the adult Warthogs.

Peter Davey, P.O. Box 15007, NAIROBI

BUTTERFLIES IMPALED ON GRASS - AN ANSWER

I read with interest the article concerning Pierid butterflies impaled on grass stems in the September/October issue of the Bulletin (p. 109).

I must admit to being baffled, except that my colleague Mr K.G.V. Smith had made what I believe to be a very plausible suggestion, which is backed up by a number of such recorded instances affecting insects in this country:

If the butterflies, the Brown-veined White, Anaphaeis aurota (the spelling of the genus was given incorrectly) were flying over the grass in numbers, perhaps during migration, and there was a sudden fierce squall, then they might have been driven down on to the grass. This can happen forcefully enough to impale insects on silaceous, sharp-tipped grass blades. We suggest that only those few impaled through the thorax were retained - those spiked through the softer abdomen, or delicate wings, were able subsequently to struggle free, albeit damaged.

We can offer no other suggestions concerning this unusual incident.

Mr R.I. Vane-Wright, Head, Butterfly Section,
British Museum (Natural History), Cromwell Road,
LONDON, U.K.

BOOK REVIEW

'A Field Guide to Ethiopian Minerals, Rocks and Fossils' by Bill Morton, Addis Ababa University Press; 170 pp; 60 text figs.; price unknown.

This is basically an elementary geology text, with a chapter detailing Ethiopian rock, mineral and fossil localities tacked on at the end. The text is a good introduction to geology, biased towards actual field observations, and the only doubtful theoretical point in the description of 'greywacke' as an essentially matamorphosed rock (p. 81); unmetamorphosed greywackes abound on the submarine continental margins. The reproduction of the numerous drawings is adequate, but the printing occasionally obscures relevant detail. More labeling, particularly on the rock and fossil illustrations, is needed to amplify detail.

This introduction to geology can be obtained from many textbooks, but the summary chapter on geological localities in Ethiopia, mainly centred around the large towns, is both useful and to my knowledge unique. This is the really useful contribution of the book, and will be of great assistance to the amateur who wishes to search for a wide spectrum of geology for himself.

The area in which this book is completely inadequate are its size and binding. It is far too wide for the vast majority of pockets, which is where most field guides are pushed while taking notes, climbing cliffs etc. And the cheap, glue and thin cardboard binding will degenerate in a coverless mass of torn and loose pages within two excursions into 'the field'. In this sense it is not a 'field guide'.

A.D.L.

REQUEST FOR INFORMATION

A group of scientists inspired by Dr B.A. Krukoff of New York are studying all aspects of the biology of the well known genus Erythrina which is found throughout the tropics and sub-tropics.

An important aspect about which few observations outside America seem to have been published is pollination. What kind of bird, bat and insect visit the flowers ? which are effective pollinators ? is any one group essential for pollination ? Information about E. melanacantha is especially sought as it has been suggested that its inflorescence-structure indicates bat pollination but detailed and exact notes on other species, whether wild or in cultivation, would also be valuable.

The dispersal of Erythrina seeds is mysterious; any observations on this subject would be welcome. What is the significance of their bright colours ?

Insects eating the seeds are important and little known in this part of the world and should be collected.

Seeds of E. greenwayi, E. haerdii and E. schliebenii, about 300 g of each are needed for chemical analysis, if anyone can collect in the parts of Tanzania where they occur. The same is true for E. melanacantha ssp. somala in Somalia.

Anyone interested in these investigations should get in touch with M.G. Gilbert or J.B. Gillett in the E.A. Herbarium, Nairobi.

FOR SALE

One unused copy, third edition (1950) of Gardening in East Africa by Muriel Jex-Blake. Any offers ? Please reply to Mr E. Baumann, P.O. Box 23037 Nairobi or telephone 582242.

Mr and Mrs P. Gerrard on 'The American Bald Eagle'

On 11th September Mr and Mrs P. Gerrard described a long term study of the American Bald Eagle, Haliaeetus leucocephalus with which they have been associated since its inception in 1967. The study has been done almost entirely by teams of non professional ornithologists although funds have been raised to employ a full time observer during the last few breeding seasons. The Eagles were studied at 55°N at Lake Besner in Saskatchewan from the time of their return from winter quarters in March until their departure to the South in early November.

The Eagles habitat was shown by slides taken both from ground/water level and from the air. Many of these were far more than mere habitat records but were extremely beautiful pictures of the Canadian taiga wilderness; particularly memorable were the slides of a thunder storm over the lake and of a sunset with a loon silhouette in the middle distance.

The study habitat has a similar area to that of Lake Naivasha but supports only 14 pairs of Bald Eagles, roughly a third of the number of Fish Eagles, H. vocifer at Naivasha. This difference is almost certainly a result of a less abundant and always available food supply. Bald Eagles return to find most of Lake Besner still frozen, the only open water being by inflowing rivers. Parts of the lake adjacent to such inlets are the most favoured territories and are the only ones in which young are normally reared. A major part of the study has been ringing (banding) eaglets and also attaching coloured wing markers which enable individuals to be recognised from a distance. Marked birds have been seen in winter in Texas amd in the breeding season in Besner. Bald Eagles take at least four years to reach sexual maturity so it is in the next few years that data on mortality, recruitment and faithfulness to a particular territory and/or mate will start to accumulate. At present the population appears to be stable and pesticides are not a serious problem as in other parts of North America. However, the lake is being 'opened up' for sport fishing and there will certainly be more disturbance there. Great efforts are being made to induce a sympathetic attitude in the anglers towards the Eagles which in no way compete with fishermen as they feed almost entirely on fish that have died from various natural causes.

The Gerrards did not elaborate on the difficulties and dangers involved in ringing eaglets - the slides showed clearly enough the climbing skill needed, especially in reaching the top of the nest, typically in the top of a tall pine. Once in the nest the climber - Mrs Gerrard in the slides - lowers the eaglet to the ground in a sack for ringing, measuring, wing-tagging,

blood sampling etc. Somewhat surprisingly the adult Eagles do not attack intruders, possibly because invasion of their nest by mammalian predators is not a normal hazard of their environment so that there has been no selection for aggressive behaviour like that of the Crowned Hawk Eagle, Stephanoaetus coronatus.

Although a number of members were prevented from attending by the traffic chaos resulting from an oil tanker crash on Uhuru Highway it is discouraging for both our lecturers and programme organiser when only 20-odd members out of a Nairobi-based membership of over 400 attend a meeting. That those present however found this an extremely interesting lecture was evident from the numerous questions asked.

J.F.R.

Mr M. Clifton on 'Butterflies'

On 9th October Mr Michael Clifton, Curator of Entomology at the National Museum, gave an 'informal' lecture on 'Butterflies', illustrated by slides and mounted specimen, many of which were species of breathtaking beauty. The first thing that members learnt was that whereas the order Lepidoptera constitutes a natural group of insects distinguished from others by having the wings covered with minute scales, it does not fall naturally into two clear cut subdivisions, Moths and Butterflies. The latter are, in fact, an arbitary grouping of some 7 to 10 families out of the 223 or so families making up the order. How many species of Butterfly occur in Kenya is not known, but is likely to be in the region of 1500 (a number not greatly in excess of that of Kenyan birds).

Mr Clifton then illustrated the appearance of typical (and sometimes atypical) examples of the main Butterfly families with slides. After this he showed some notable examples of 'leaf Butterflies' which must be virtually undetectable when resting in their natural habitat - the colour patterns even included 'holes' made by feeding caterpillars. Many Butterflies exude pungent juices when handled; these juices are distasteful or even toxic to vertebrate predators, especially birds and lizards. Most distasteful Butterflies are brightly coloured and fly in a leisurely way that advertises their 'warning colours' and it is also usual for this protection to be enhanced by several distasteful species having similar colouration (Mullerian mimicry). Field identification thus becomes very difficult and becomes even more complicated by Batesian mimicry in which numerically uncommon species that are good to eat also closely resemble their Mullerian models. A common warning pattern is that shown by Danaus chrysippus whose Batesian mimics include Papilio spp and Hypolimnas misippus. Interestingly Ichneumon Fly larvae are unaffected by the poisons that form the basis

of Danaid distastefulness although one researcher, Miriam Rothschild, once almost succombed to their effects.

Many other interesting facts came to light as Mr Clifton answered the numerous questions that followed his talk. Among these may be cited : the ability of Arctic species' larvae to survive below zero temperatures by the possession of 'anti-freeze' in their body tissues; the unimportance of Butterflies as flower pollinators except for Milkweeds; the addiction of many species to alchohol; the Pierids making their scales from uric acid, an excretory end-product of protein metabolism; and the ability of at least some species to respond to the colour patterns characteristic of their species.

Although Mr Clifton mentioned polymorphism when talking about Batesian mimicry he said so little that one can only hope he is thinking of giving us another lecture to include a full treatment of this topic and also that especially tropical phenomenon seasonal dimorphism - it is certain to be as fully appreciated as this one obviously was.

J.F.R.

SOCIETY NOTES

Special Bird Song Records Offer to Members

Birds of the African Rain Forest recorded by Stuart Keith will shortly be available to members. These two records with a comprehensice text were reviewed in the December 1974 Bulletin (p. 169). In all, 92 African forest birds are covered, of which only 9 are duplicated on M.E.W. North's records. Cost to paid up members will be Shs. 90.00 ONLY. Are you wondering what to buy your bird minded friend for Christmas - here is the answer. Please place your orders with the Secretary.

A Guide to Common Reef Fishes of the Western Indian Ocean

These books have finally arrived in Nairobi, and should be available in the Society's office at the begining of November. Special price to members - only Shs. 32.00. Those who have placed advance orders will be informed as soon as the books are received. Another ideal Christmas present - this time for the fish minded friend !

Upland Kenya Wild Flowers

Have you bought your copy yet ? The Society is holding the few remaining books still in print, so you had better hurry ! Special price to members is only Shs. 150.00, and remember that Christmas is coming.

1979 Subscriptions

will be due on January 1st 1979, but it is always a great help if some members pay before that date. A renewal form is enclosed with this issue of the Bulletin, please enclose it when sending your cheque.

Application Forms

are also enclosed - please hand then out to any friend who is not a member. Why not give a years subscription for Christmas, we try to cater for everyones natural history interest.

70th Anniversary

Not one suggestion has been received on how we can suitably celebrate the Society's 70th Anniversary - the Secretary is looking forward to hearing from YOU !

Functions

Do you enjoy out lectures and trips ? If so, please write in to the Secretary with IDEAS, OFFERS TO LEAD TRIPS etc. Your help would be gratefully received.

NEW MEMBERS

Local Full Members

James L. Anderson, P.O. Box 46098, NAIROBI
Mr and Mrs M. Atkinson, P.O. Box 40751, NAIROBI
Mr Lou Awodey, National Outdoor Leadership School, P.O. Box 67, NARO MORU, Kenya
Mrs R. Boarer, I.L.R.A.D., P.O. Box 30709, NAIROBI
Mrs Jane Carson, Dept. of Medical Engineering, P.O. Box 30197, NAIROBI
Mr Francis Doe, Gekendo Harambee Sec. School, GEKENDO, Kisii, Kenya.
Anders Floren, Swedish School, P.O. Box 30596, NAIROBI
Mr M. Kimber, P.O. Box 30156, NAIROBI
Mr Robert Kuchta, P.O. Box 59358, NAIROBI
F. Desmond McCarthy, FAO/UNDP, P.O. Box 30218, NAIROBI
Ms D. Neilson, P.O. Box 49608, NAIROBI
Mr Bernard L. Otindo, ICIPE, P.O. Box 30772, NAIROBI
Donald D. Pinci, P.O. Box 30518, NAIROBI
Dr K.M. Price, P.O. Box 30707, NAIROBI
Dr D.J.W. Rose, K.A.R.I., P.O. Box 30148, NAIROBI
Mr G. Turle, P.O. Box 47616, NAIROBI

Local Institutional Membership

Intercultural Action Learning Programme, P.O. Box 15007, NAIROBI

SOCIETY FUNCTIONS

Sunday 12th November 1978: Day field excursion to Migaa Easate in the Kiambu area. General natural history interest. Please meet at the National Museum, Nairobi at 9 a.m. SHARP, and bring a picnic lunch if you intend to stay during the afternoon.

Monday 13th November 1978 at the Museum Hall, Nairobi: 5.30 p.m. Dr S. Cobb of the Department of Zoology, University of Nairobi will give an illustrated lecture on 'The Rise and Fall of the Tsavo Elephants'.

Sunday 26th November 1978 (PLEASE NOTE CHANGE OF DATE) Nairobi area bird census. If you wish to take part in this census, please fill in the enclosed form and return it to the Secretary, P.O. Box 44486, NAIROBI.

Monday 11th December 1978 in the T.I.L.L.M.I.A.P. Lecture Hall, (behind National Museum) Prof. J.P.M. Brenan, Director of the Royal Botanic Garden, Kew will give a lecture on 'The Flora of Kenya and its relevance to conservation'. This lecture had been arranged by the Kenya Science Foundation. Time: 5.30 p.m.

Monday 18th December 1978 at the Museum Hall, Nairobi: 5.30 p.m. A National Geographic film 'Creatures of the Night' kindly loaned by the World Wildlife Fund, will be introduced by Mr Ellis Monks. Playing time of the film is 53 minutes

Monday 8th January 1979 we hope to arrange a lecture by Prof. J. David Ligon, Department of Biology, University of New Mexico on the Green Wood Hoopoes he had been studying in the Naivasha area. More details later.

Sunday 14th January 1979 Mr Mike Clarke will lead a 'Dudu Crawl' in the Nairobi area. Please meet at the National Museum at 9 a.m. and bring a picnic lunch if you wish to stay in the afternoon.

17th/18th March 1979 Camp in the Chyulu Hills - details later.

STOP PRESS FOR SALE

One pair of used 8 x 30 B Dialyt Zeiss Binoculars. Can been seen in the Society's office at the National Museum.
Price 2,500/- o.n.o.

THE EAST AFRICA NATURAL HISTORY SOCIETY

Chairman: J. S. Karmali
Vice Chairman: Dr J. Kokwaro
Editor, Jl E. Africa nat. Hist. Soc. Nat. Mus.: Mrs J. Hayes
Secretary/Treasurer: Miss D. Angwin
Ass. Secretary/Treasurer: Mrs E. B. Angwin
Librarian: Dr J. Kokwaro
Executive Committee (in addition to the above): Miss P. M. Allen, G. C. Backhurst (*Ringing Organizer*), Mrs A. L. Campbell, M. P. Clifton (*Editor EANHS Bulletin*), Dr J. Gerhart, Dr J. M. Mutinga, Dr D. J. Pearson, J. F. Reynolds.
Co-opted Members: Mrs H. A. Britton (*Nest Record Scheme Organizer*), P. Davey, M. Gilbert, Dr A. Hill, J. Maikweki, J. Miskell, M. Mukoko, Mrs F. Ng'weno, D. A. Turner.
Journal Editorial Sub-Committee Mrs J. Hayes, Miss D. Angwin, Mrs V. Balcomb, M. P. Clifton, Dr D. J. Pearson, J. F. Reynolds, Dr A. Hill.
Ornithological Sub-Committee Dr D. J. Pearson, D. A. Turner, G. C. Backhurst, Mrs H. A. Britton, P.L. Britton, Dr A. W. Diamond, Dr J. Gerhart, B. S. Meadows, J. F. Reynolds, D. K. Richards, A. D. Forbes-Watson, C. Mann (London) Dr M. Carswell (Kampala), Dr K. Howell (Dar es Salaam).
Joint Library Sub-Committee (Society representatives) Dr J. Kokwaro, Mrs J. Hayes, M. P. Clifton.
Functions Sub-Committee Mrs A. L. Campbell, Mrs E. B. Angwin, M. Gilbert.

MEMBERSHIP

This offers you free entry to the National Museum, Nairobi; free lectures, films, slide shows or discussions every month in Nairobi; field trips and camps led by experienced guides; free use of the Joint Society-National Museum Library (postal borrowing is also possible); reciprocal arrangements with the Uganda Society's Library in the Uganda Museum, Kampala; family participation: wives and children of members may attend most Society functions; one copy of the *EANHS Bulletin* every two months; a copy of each *Journal* published during your period of membership; the Society controls the ringing of birds in East Africa and welcomes new ringers and runs an active Nest Record Scheme; activities such as plant mapping and game counting are undertaken on a group basis. Membership rates are given at the foot of this page.

JOURNAL

The Society publishes *The Journal of the East Africa Natural History Society and National Museum.* Each issue consists usually of one paper, however, sometimes two or more short papers may be combined to form one number. The aim of this method of presentation is to ensure prompt publication of scientific information; a title page is issued at the end of each year so that the year's papers may be bound together. Contributions, which should be typed in double spacing on one side of the paper, with wide margins, should be sent to the Secretary, Box 44486, Nairobi, Kenya. Authors receive twenty-five reprints of their article free, provided that these are ordered at the time the proofs are returned.

E.A.N.H.S. BULLETIN

This is a duplicated magazine issued six times a year, which exists for the rapid publication of short notes, articles, letters and reviews. Contributions, which may be written in clear handwriting or typed, should be sent to The Editor (*EANHS Bulletin*), Box 44486, Nairobi, Kenya. Line drawings will be considered if they add to the value of the article. Photographs cannot be published.

SCOPUS

The Ornithological Sub Committee publishes this quarterly bird magazine. Cost: EANHS members KShs. 50/- p.a., non-EANHS members KShs. 75/- p.a. All correspondence to D. A. Turner, Box 48019, Nairobi, Kenya.

MEMBERSHIP SUBSCRIPTION RATES

Life	One payment: Kshs. 750/-
Institutional (schools, libraries) .	annual payment: Kshs. 50/-
Full Local	annual payment: Kshs. 50/-
Overseas	" " Kshs. 70/-
Junior (full-time student, no *Journal* supplied) . . .	annual payment: Kshs. 10/-

Subscriptions are due 1st January. From 1st July you may join for Kshs. 35/- and receive publications from that date. Application forms for membership are obtainable from the Secretary, Box 44486, Nairobi.

SMITHSONIAN INSTITUTION LIBRARIES
SMITHSONIAN INSTITUTION LIBRARIES
SMITHSONIAN INSTITUTION LIBRARIES

SMITHSONIAN INSTITUTION LIBRARIES

SMITHSONIAN INSTITUTION LIBRARIES
3 9088 01230 2824